

Version 1.0

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- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

“Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate”

ASRock Website: <http://www.asrock.com>

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Fatal1ty Story

Who knew that at age 19, I would be a World Champion PC gamer. When I was 13, I actually played competitive billiards in professional tournaments and won four or five games off guys who played at the highest level. I actually thought of making a career of it, but at that young age situations change rapidly. Because I've been blessed with great hand-eye coordination and a grasp of mathematics (an important element in video gaming) I gravitated to that activity.

GOING PRO

I started professional gaming in 1999 when I entered the CPL (Cyberathlete Professional League) tournament in Dallas and won \$4,000 for coming in third place. Emerging as one of the top players in the United States, a company interested in sponsoring me flew me to Sweden to compete against the top 12 players in the world. I won 18 straight games, lost none, and took first place, becoming the number one ranked Quake III player in the world in the process. Two months later I followed that success by traveling to Dallas and defending my title as the world's best Quake III player, winning the \$40,000 grand prize. From there I entered competitions all over the world, including Singapore, Korea, Germany, Australia, Holland and Brazil in addition to Los Angeles, New York and St. Louis.

WINNING STREAK

I was excited to showcase my true gaming skills when defending my title as CPL Champion of the year at the CPL Winter 2001 because I would be competing in a totally different first person shooter (fps) game, Alien vs. Predator II. I won that competition and walked away with a new car. The next year I won the same title playing Unreal Tournament 2003, becoming the only three-time CPL champion of the year. And I did it playing a different game each year, something no one else has ever done and a feat of which I am extremely proud.

At QuakeCon 2002, I faced off against my rival ZeRo4 in one of the most highly anticipated matches of the year, winning in a 14 to (-1) killer victory. Competing at Quakecon 2004, I became the World's 1st Doom3 Champion by defeating Daler in a series of very challenging matches and earning \$25,000 for the victory.

Since then Fatal1ty has traveled the globe to compete against the best in the world, winning prizes and acclaim, including the 2005 CPL World Tour Championship in New York City for a \$150,000 first place triumph. In August 2007, Johnathan was awarded the first ever Lifetime Achievement Award in the four year history of the eSports-Award for "showing exceptional sportsmanship, taking part in shaping eSports into what it is today and for being the prime representative of this young sport. He has become the figurehead for eSports worldwide".

LIVIN' LARGE

Since my first big tournament wins, I have been a “Professional Cyberathlete”, traveling the world and livin' large with lots of International media coverage on outlets such as MTV, ESPN and a 60 Minutes segment on CBS to name only a few. It's unreal - it's crazy. I'm living a dream by playing video games for a living. I've always been athletic and took sports like hockey and football very seriously, working out and training hard. This discipline helps me become a better gamer and my drive to be the best has opened the doors necessary to become a professional.

A DREAM

Now, another dream is being realized – building the ultimate gaming computer, made up of the best parts under my own brand. Quality hardware makes a huge difference in competitions...a couple more frames per second and everything gets really nice. It's all about getting the computer processing faster and allowing more fluid movement around the maps.

My vision for Fatal1ty hardware is to allow gamers to focus on the game without worrying about their equipment, something I've preached since I began competing. I don't want to worry about my equipment. I want to be there – over and done with - so I can focus on the game. I want it to be the fastest and most stable computer equipment on the face of the planet, so quality is what Fatal1ty Brand products represent.

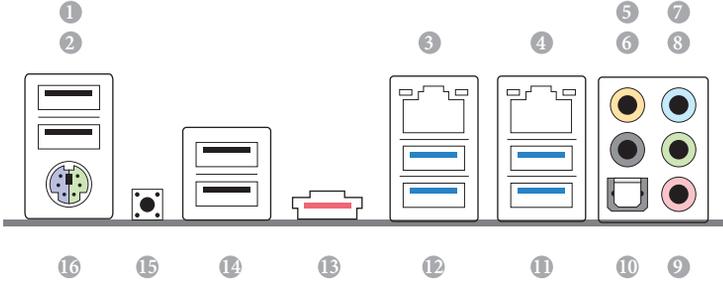


Johnathan “Fatal1ty” Wendel



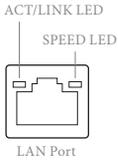
No.	Description
1	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1)
2	ATX 12V Power Connector (ATX12V1)
3	2 x 288-pin DDR4 DIMM Slots (DDR4_D1, DDR4_C1)
4	CPU Fan Connector (CPU_FAN1)
5	CPU Fan Connector (CPU_FAN2)
6	TPM Header (TPMS1)
7	ATX Power Connector (ATXPWR1)
8	USB 3.0 Header (USB3_5_6)
9	Chassis Fan Connector (CHA_FAN2)
10	SATA3 Connectors (S_SATA3_0_1)
11	HDD Saver Connector (SATA_PWR_1)
12	SATA3 Connectors (S_SATA3_2_3)
13	SATA3 Connectors (SATA3_0_3)
14	SATA3 Connectors (SATA3_1_4)
15	SATA3 Connectors (SATA3_2_5)
16	Power LED Header (PLED1)
17	System Panel Header (PANEL1)
18	Power Switch (PWRBTN1)
19	Reset Switch (RSTBTN1)
20	Clear CMOS Jumper (CLRCMOS1)
21	Chassis Speaker Header (SPEAKER1)
22	Chassis Fan Connector (CHA_FAN1)
23	USB 2.0 Header (USB7_8)
24	USB 2.0 Header (USB5_6)
25	COM Port Header (COM1)
26	Thunderbolt AIC Connector (TBT1)
27	PCIe Power Connector (PCIE_PWR1)
28	Front Panel Audio Header (HD_AUDIO1)
29	BIOS Selection Switch (BIOS_SEL1)
30	Power Fan Connector (PWR_FAN1)

I/O Panel



No.	Description	No.	Description
1	Fatal1ty Mouse Port (USB1)	9	Microphone (Pink)
2	USB 2.0 Port (USB2)	10	Optical SPDIF Out Port
3	LAN RJ-45 Port (Intel® I218V)*	11	USB 3.0 Ports (USB3_34)
4	LAN RJ-45 Port (Qualcomm® Atheros® Killer™ E2200 Series)*	12	USB 3.0 Ports (USB3_12)
5	Central / Bass (Orange)	13	eSATA Connector***
6	Rear Speaker (Black)	14	USB 2.0 Ports (USB34)
7	Line In (Light Blue)	15	Clear CMOS Switch
8	Front Speaker (Lime)**	16	PS/2 Mouse/Keyboard Port

* There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.



Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

** If you use a 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack". See the table below for connection details in accordance with the type of speaker you use.

Audio Output Channels	Front Speaker (No. 8)	Rear Speaker (No. 6)	Central / Bass (No. 5)	Line In (No. 7)
2	V	--	--	--
4	V	V	--	--
6	V	V	V	--
8	V	V	V	V



To enable Multi-Streaming, you need to connect a front panel audio cable to the front panel audio header. After restarting your computer, you will find the "Mixer" tool on your system. Please select "Mixer ToolBox" , click "Enable playback multi-streaming", and click "ok". Choose "2CH", "4CH", "6CH", or "8CH" and then you are allowed to select "Realtek HDA Primary output" to use the Rear Speaker, Central/Bass, and Front Speaker, or select "Realtek HDA Audio 2nd output" to use the front panel audio.

*** The eSATA connector supports SATA with cables within 1 meters. The S_SATA3_3 connector is shared with the eSATA port.

Chapter 1 Introduction

Thank you for purchasing ASRock Fatal1ty X99M Killer Series motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.



Because the motherboard specifications and the BIOS software might be updated, the content of this documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on ASRock's website without further notice. If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. You may find the latest VGA cards and CPU support list on ASRock's website as well. ASRock website <http://www.asrock.com>.

1.1 Package Contents

- ASRock Fatal1ty X99M Killer Series Motherboard (Micro ATX Form Factor)
- ASRock Fatal1ty X99M Killer Series Quick Installation Guide
- ASRock Fatal1ty X99M Killer Series Support CD
- 1 x I/O Panel Shield
- 1 x ASRock SLI_Bridge Card
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 1 x HDD Saver Cable
- 1 x Screw for Ultra M.2 Socket

1.2 Specifications

- Platform**
- Micro ATX Form Factor
 - High Density Glass Fabric PCB

- CPU**
- Supports Intel® Core™ i7 and Xeon® 18-Core Processors Family for the LGA 2011-3 Socket
 - Digi Power design
 - 12 Power Phase design
 - Supports Intel® Turbo Boost 2.0 Technology
 - Supports Untied Overclocking Technology

- Chipset**
- Intel® X99

- Memory**
- Quad Channel DDR4 Memory Technology
 - 4 x DDR4 DIMM Slots
 - Supports DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/2133/1866/ 1600/1333/1066 non-ECC, un-buffered memory
 - * Please refer to Memory Support List on ASRock's website for more information. (<http://www.asrock.com/>)
 - Supports non-ECC RDIMM (Registered DIMM)
 - Supports DDR4 ECC, un-buffered memory/RDIMM with Intel® Xeon® processors E5 series in the LGA 2011-3 Socket
 - Max. capacity of system memory: 64GB (see CAUTION)
 - Supports Intel® Extreme Memory Profile (XMP) 2.0
 - 15μ Gold Contact in DIMM Slots

- Expansion Slot**
- 2 x PCI Express 3.0 x16 Slots (PCIE1 @ x16 mode; PCIE2 @ x16 mode)
 - * If you install CPU with 28 lanes, PCIE1/PCIE2 will run at x16/x8.
 - 1 x PCI Express 2.0 x16 Slot (PCIE3 @ x4 mode)
 - Supports AMD Quad CrossFireX™ and CrossFireX™
 - Supports NVIDIA® Quad SLI™ and SLI™
 - 15μ Gold Contact in VGA PCIe Slot (PCIE1 and PCIE2)

Audio

- 7.1 CH HD Audio with Content Protection (Realtek ALC1150 Audio Codec)
- Premium Blu-ray Audio support
- Supports Surge Protection (ASRock Full Spike Protection)
- Supports Purity Sound™ 2
 - Nichicon Fine Gold Series Audio Caps
 - 115dB SNR DAC with Differential Amplifier
 - TI* NE5532 Premium Headset Amplifier (Supports up to 600 Ohms headsets)
 - Direct Drive Technology
 - EMI Shielding Cover
 - PCB Isolate Shielding
- Supports DTS Connect

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200 Series (PCIe x1 Gigabit LAN 10/100/1000 Mb/s)
- Supports Qualcomm® Atheros® Security Wake On Internet Technology (on Qualcomm® Atheros® Killer™ E2200 Series)
- Supports Wake-On-LAN
- Supports Lightning/ESD Protection (ASRock Full Spike Protection)
- Supports Energy Efficient Ethernet 802.3az
- Supports PXE

Rear Panel I/O

- 1 x PS/2 Mouse/Keyboard Port
- 1 x Optical SPDIF Out Port
- 1 x eSATA Connector
- 3 x USB 2.0 Ports (Supports ESD Protection (ASRock Full Spike Protection))
- 1 x FatalIty Mouse Port (USB 2.0) (Supports ESD Protection (ASRock Full Spike Protection))
- 4 x USB 3.0 Ports (Supports ESD Protection (ASRock Full Spike Protection))
- 2 x RJ-45 LAN Ports with LED (ACT/LINK LED and SPEED LED)
- 1 x Clear CMOS Switch
- HD Audio Jacks: Rear Speaker / Central / Bass / Line in / Front Speaker / Microphone

Storage

- 10 x SATA3 6.0 Gb/s Connectors, support RAID (RAID 0, RAID 1, RAID 5, RAID 10 and Intel Rapid Storage 13), NCQ, AHCI, Hot Plug and ASRock HDD Saver Technology (S_SATA3_3 connector is shared with the eSATA port) (S_SATA3_2 connector is shared with Ultra M.2 Socket)
- * RAID is supported on SATA3_0 ~ SATA3_5 ports only.
- 1 x eSATA Connector, supports NCQ, AHCI and Hot Plug
- 1 x Ultra M.2 Socket, supports M.2 SATA3 6.0 Gb/s module and M.2 PCI Express module up to Gen3 x4 (32 Gb/s)

Connector

- 1 x COM Port Header
- 1 x TPM Header
- 1 x Power LED Header
- 2 x CPU Fan Connectors (1 x 4-pin, 1 x 3-pin)
- 2 x Chassis Fan Connectors (1 x 4-pin, 1 x 3-pin) (Smart Fan Speed Control)
- 1 x Power Fan Connector (3-pin)
- 1 x 24 pin ATX Power Connector
- 1 x 8 pin 12V Power Connector (Hi-Density Power Connector)
- 1 x HDD Saver Connector
- 1 x PCIe Power Connector
- 1 x Front Panel Audio Connector
- 1 x Thunderbolt AIC Connector
- 2 x USB 2.0 Headers (support 4 USB 2.0 ports) (Supports ESD Protection (ASRock Full Spike Protection))
- 1 x USB 3.0 Header (Supports 2 USB 3.0 ports) (Supports ESD Protection (ASRock Full Spike Protection))
- 1 x Dr. Debug with LED
- 1 x Power Switch with LED
- 1 x Reset Switch with LED
- 1 x BIOS Selection Switch

BIOS Feature

- 2 x 128Mb AMI UEFI Legal BIOS with multilingual GUI support (1 x Main BIOS and 1 x Backup BIOS)
- Supports Secure Backup UEFI Technology
- ACPI 1.1 Compliant wake up events
- SMBIOS 2.3.1 Support
- CPU, DRAM, PCH 1.05V, PCH 1.5V, VPPM Voltage Multi-adjustment

**Hardware
Monitor**

- CPU/Chassis temperature sensing
- CPU/Chassis/Power Fan Tachometer
- CPU/Chassis Quiet Fan (Auto adjust chassis fan speed by CPU temperature)
- CPU/Chassis Fan multi-speed control
- Voltage monitoring: +12V, +5V, +3.3V, CPU Input Voltage, CPU Internal Voltages

OS

- Microsoft® Windows® 10 64-bit / 8.1 32-bit / 8.1 64-bit / 8 32-bit / 8 64-bit / 7 32-bit / 7 64-bit

**Certifica-
tions**

- FCC, CE, WHQL
- ErP/EuP Ready (ErP/EuP ready power supply is required)

* For detailed product information, please visit our website: <http://www.asrock.com>



Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.



Due to limitation, the actual memory size may be less than 4GB for the reservation for system usage under Windows® 32-bit operating systems. Windows® 64-bit operating systems do not have such limitations. You can use ASRock XFast RAM to utilize the memory that Windows® cannot use.

Chapter 2 Installation

This is a Micro ATX form factor motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Make sure to unplug the power cord before installing or removing the motherboard components. Failure to do so may cause physical injuries and damages to motherboard components.
- In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a carpet. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
- Hold components by the edges and do not touch the ICs.
- Whenever you uninstall any components, place them on a grounded anti-static pad or in the bag that comes with the components.
- When placing screws to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

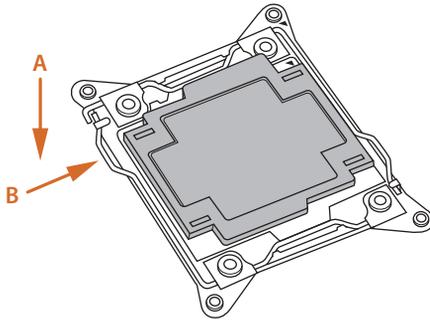
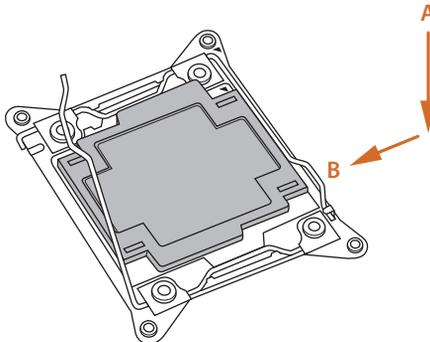
2.1 Installing the CPU



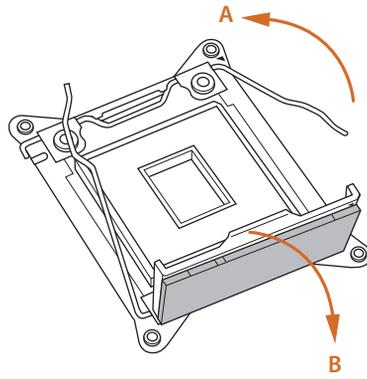
1. Before you insert the **2011-3-Pin CPU** into the socket, please check if the **PnP cap** is on the socket, if the CPU surface is unclean, or if there are any **bent pins** in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power cables before installing the CPU.

CAUTION:

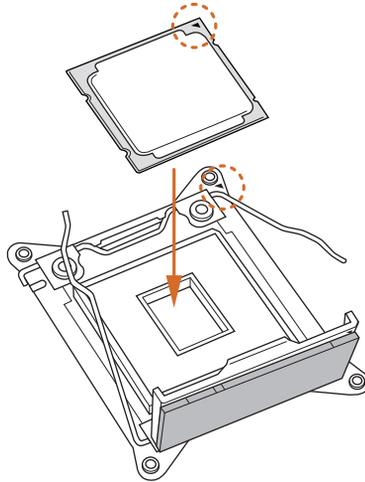
Please note that X99 platform is only compatible with the **LGA 2011-3 socket**, which is incompatible with the LGA 2011 socket (for X79 platform).

1**2**

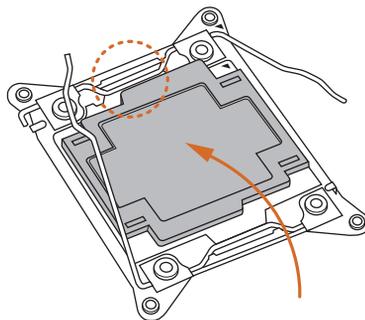
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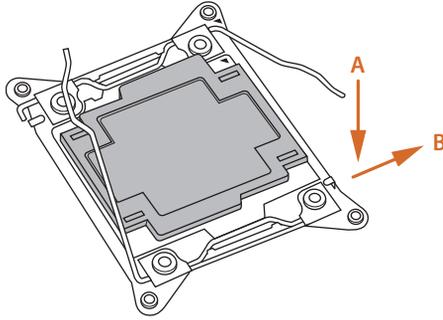
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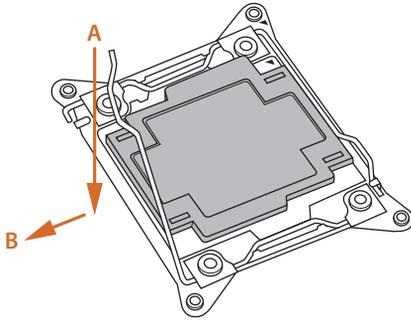
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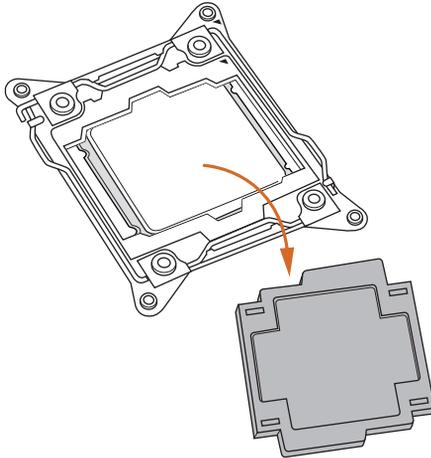
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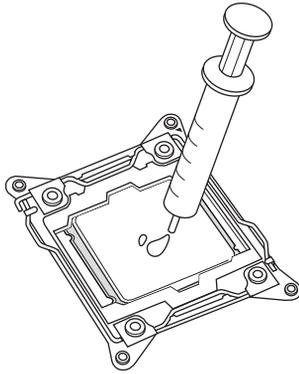


8

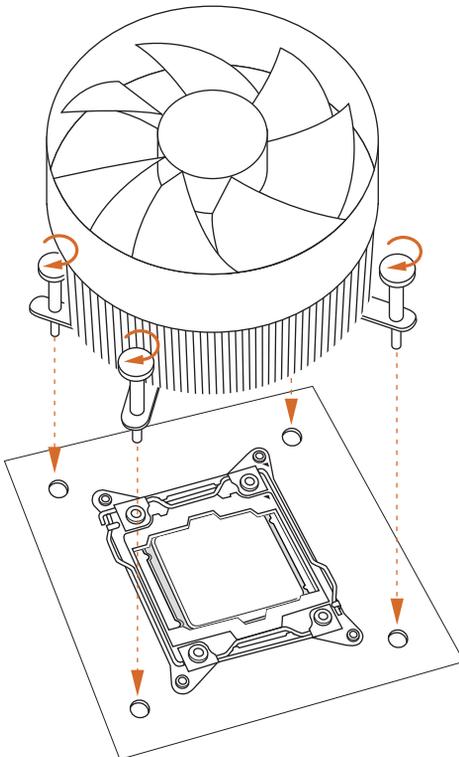


Please save and replace the cover if the processor is removed. The cover must be placed if you wish to return the motherboard for after service.

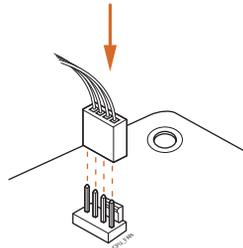
2.2 Installing the CPU Fan and Heatsink



1



2



2.3 Installation of Memory Modules (DIMM)

This motherboard provides four 288-pin DDR4 (Double Data Rate 4) DIMM slots, and supports Quad Channel Memory Technology.



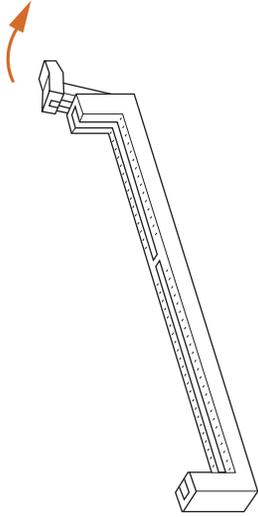
1. For quad channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 DIMM pairs.
2. It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and DIMM may be damaged.
3. The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

Quad Channel Memory Configuration

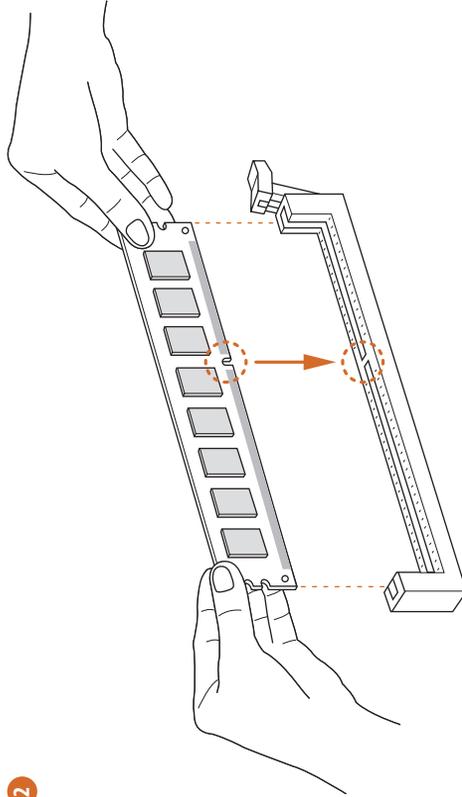
DDR4_A1	Populated
DDR4_B1	Populated
DDR4_C1	Populated
DDR4_D1	Populated

- If only two memory modules are installed in the DDR4 DIMM slots, then Dual Channel Memory Technology is activated. If three memory modules are installed, then Triple Channel Memory Technology is activated. If four memory modules are installed in the DDR4 DIMM slots, then Quad Channel Memory Technology is activated.

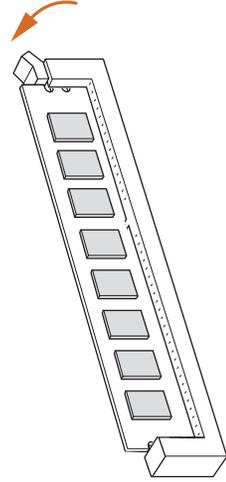
1



2



3



2.4 Expansion Slots (PCI Express Slots)

There are 3 PCI Express slots on the motherboard.



Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

PCIe slots:

PCIE1 (PCIe 3.0 x16 slot) is used for PCI Express x16 lane width graphics cards.

PCIE2 (PCIe 3.0 x16 slot) is used for PCI Express x16 lane width graphics cards.

PCIE3 (PCIe 2.0 x16 slot) is used for PCI Express x4 lane width cards.

PCIe Slot Configurations (For CPU with 40 PCIe lanes)

	PCIE1	PCIE2	PCIE3
Single Graphics Card	x16	N/A	N/A
Two Graphics Cards in CrossFireX™ or SLI™ Mode	x16	x16	N/A

PCIe Slot Configurations (For CPU with 28 PCIe lanes)

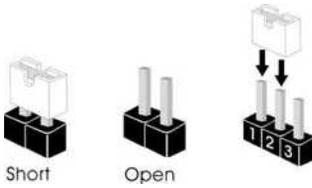
	PCIE1	PCIE2	PCIE3
Single Graphics Card	x16	N/A	N/A
Two Graphics Cards in CrossFireX™ or SLI™ Mode	x16	x8	N/A



For a better thermal environment, please connect a chassis fan to the motherboard's chassis fan connector (CHA_FAN1 or CHA_FAN2) when using multiple graphics cards.

2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is “Short”. If no jumper cap is placed on the pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when a jumper cap is placed on these 2 pins.



Clear CMOS Jumper
(CLR CMOS1)
(see p.1, No. 20)



Default



Clear CMOS

CLR CMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLR CMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, and user default profile will be cleared only if the CMOS battery is removed.



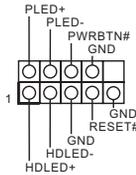
The Clear CMOS Switch has the same function as the Clear CMOS jumper.

2.6 Onboard Headers and Connectors



Onboard headers and connectors are **NOT** jumpers. Do **NOT** place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

System Panel Header
(9-pin PANEL1)
(see p.1, No. 17)



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.



PWRBTN (Power Switch):

Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

RESET (Reset Switch):

Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):

Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):

Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

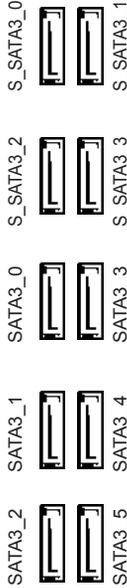
The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Power LED Header
(3-pin PLED1)
(see p.1, No. 16)



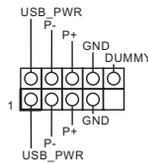
Please connect the chassis power LED to this header to indicate the system's power status.

Serial ATA3 Connectors
(S_SATA3_0_1:
see p.1, No. 10)
(S_SATA3_2_3:
see p.1, No. 12)
(SATA3_0_3:
see p.1, No. 13)
(SATA3_1_4:
see p.1, No. 14)
(SATA3_2_5:
see p.1, No. 15)



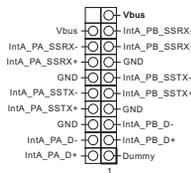
These ten SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate. If the eSATA port on the rear I/O has been connected, the internal S_SATA3_3 will not function. If the Ultra M.2 Socket has been occupied, the internal S_SATA3_2 will not function.
* RAID is supported on SATA3_0 ~ SATA3_5 ports only.

USB 2.0 Headers
(9-pin USB5_6)
(see p.1, No. 24)
(9-pin USB7_8)
(see p.1, No. 23)



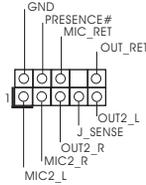
Besides four USB 2.0 ports on the I/O panel, there are two headers on this motherboard. Each USB 2.0 header can support two ports.

USB 3.0 Header
(19-pin USB3_5_6)
(see p.1, No. 8)



Besides four USB 3.0 ports on the I/O panel, there is one header on this motherboard. This USB 3.0 header can support two ports.

Front Panel Audio Header
(9-pin HD_AUDIO1)
(see p.1, No. 28)

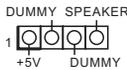


This header is for connecting audio devices to the front audio panel.



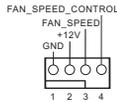
1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instructions in our manual and chassis manual to install your system.
2. If you use an AC'97 audio panel, please install it to the front panel audio header by the steps below:
 - A. Connect Mic_IN (MIC) to MIC2_L.
 - B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L.
 - C. Connect Ground (GND) to Ground (GND).
 - D. MIC_RET and OUT_RET are for the HD audio panel only. You don't need to connect them for the AC'97 audio panel.
 - E. To activate the front mic, go to the "FrontMic" Tab in the Realtek Control panel and adjust "Recording Volume".

Chassis Speaker Header
(4-pin SPEAKER1)
(see p.1, No. 21)



Please connect the chassis speaker to this header.

Chassis and Power Fan Connectors
(4-pin CHA_FAN1)
(see p.1, No. 22)

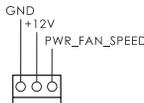


Please connect fan cables to the fan connectors and match the black wire to the ground pin. CHA_FAN fan speed can be controlled through UEFI or A-Tuning.

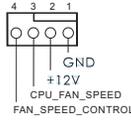
(3-pin CHA_FAN2)
(see p.1, No. 9)



(3-pin PWR_FAN1)
(see p.1, No. 30)



CPU Fan Connectors
(4-pin CPU_FAN1)
(see p.1, No. 4)

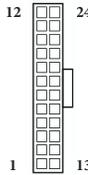


(3-pin CPU_FAN2)
(see p.1, No. 5)



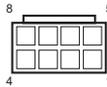
This motherboard provides a 4-Pin CPU fan (Quiet Fan) connector. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

ATX Power Connector
(24-pin ATXPWR1)
(see p.1, No. 7)



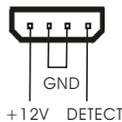
This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.

ATX 12V Power Connector
(8-pin ATX12V1)
(see p.1, No. 2)



This motherboard provides an 8-pin ATX 12V power connector. To use a 4-pin ATX power supply, please plug it along Pin 1 and Pin 5.

PCIe Power Connector
(4-pin PCIE_PWR1)
(see p.1, No. 27)



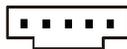
Please connect a 4 pin molex power cable to this connector when more than three graphics cards are installed.

HDD Saver Connector
(4-pin SATA_PWR_1)
(see p.1, No. 11)



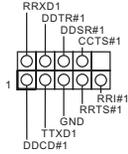
Please connect the HDD Saver Cable to this connector to manage the power state of HDD.

Thunderbolt AIC Connector
(5-pin TBT1)
(see p.1, No. 26)



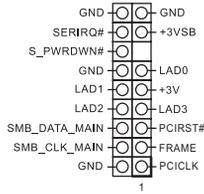
Please connect a Thunderbolt™ add-in card (AIC) to this connector via the GPIO cable.

Serial Port Header
(9-pin COM1)
(see p.1, No. 25)



This COM1 header supports a serial port module.

TPM Header
(17-pin TPMS1)
(see p.1, No. 6)



This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

2.7 Smart Switches

The motherboard has four smart switches: Power Switch, Reset Switch, Clear CMOS Switch and one BIOS Selection Switch, allowing users to quickly turn on/off the system, reset the system, clear the CMOS values or boot from different BIOS.

Power Switch
(PWRBTN)
(see p.1, No. 18)



Power Switch allows users to quickly turn on/off the system.

Reset Switch
(RSTBTN)
(see p.1, No. 19)



Reset Switch allows users to quickly reset the system.

Clear CMOS Switch
(CLRCBTN)
(see p.3, No. 15)



Clear CMOS Switch allows users to quickly clear the CMOS values.



This function is workable only when you power off your computer and unplug the power supply.

BIOS Selection Switch
(BIOS_SEL1)
(see p.1, No. 29)



BIOS Selection Switch allows the system to boot from either BIOS A or BIOS B.



This motherboard has two BIOS chips, a primary BIOS (BIOS_A) and a backup BIOS (BIOS_B), which enhances the safety and stability of your system. Normally, the system will work on the primary BIOS. However, if the primary BIOS is corrupted or damaged, just flip the BIOS Selection Switch to "B", then the backup BIOS will take over on the next system boot. After that, use "Secure Backup UEFI" in the UEFI Setup Utility to duplicate a working copy of the BIOS files to the primary BIOS to ensure normal system operation. For safety issues, users are not able to update the backup BIOS manually. Users may refer to the BIOS LEDs (BIOS_A_LED or BIOS_B_LED) to identify which BIOS is currently activated.

2.8 Dr. Debug

Dr. Debug is used to provide code information, which makes troubleshooting even easier. Please see the diagrams below for reading the Dr. Debug codes.

Code	Description
00	Please check if the CPU is installed correctly and then clear CMOS.
0d	Problem related to memory, VGA card or other devices. Please clear CMOS, re-install the memory and VGA card, and remove other USB, PCI devices.
01 - 54 (except 0d), 5A- 60	Problem related to memory. Please re-install the CPU and memory then clear CMOS. If the problem still exists, please install only one memory module or try using other memory modules.
55	The Memory could not be detected. Please re-install the memory and CPU. If the problem still exists, please install only one memory module or try using other memory modules.
61 - 91	Chipset initialization error. Please press reset or clear CMOS.
92 - 99	Problem related to PCI-E devices. Please re-install PCI-E devices or try installing them in other slots. If the problem still exists, please remove all PCI-E devices or try using another VGA card.
A0 - A7	Problem related to IDE or SATA devices. Please re-install IDE and SATA devices. If the problem still exists, please clear CMOS and try removing all SATA devices.
b0	Problem related to memory. Please re-install the CPU and memory. If the problem still exists, please install only one memory module or try using other memory modules.

b4 Problem related to USB devices. Please try removing all USB devices.

b7 Problem related to memory. Please re-install the CPU and memory then clear CMOS. If the problem still exists, please install only one memory module or try using other memory modules.

d6 The VGA could not be recognized. Please clear CMOS and try re-installing the VGA card. If the problem still exists, please try installing the VGA card in other slots or use other VGA cards.

d7 The Keyboard and mouse could not be recognized. Please try re-installing the keyboard and mouse.

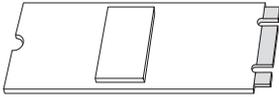
d8 Invalid Password.

FF Please check if the CPU is installed correctly and then clear CMOS.

2.9 M.2_SSD (NGFF) Module Installation Guide

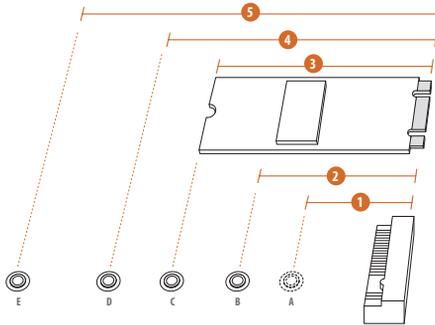
The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The Ultra M.2 Socket (M2_1) can accommodate either a M.2 SATA3 6.0 Gb/s module or a M.2 PCI Express module up to Gen3 x4 (32 Gb/s). Please be noted that the Ultra M.2 Socket (M2_1) is shared with the S_SATA3_2 connector; you can only choose either the Ultra M.2 Socket (M2_1) or the S_SATA3_2 connector to use.

Installing the M.2_SSD (NGFF) Module



Step 1

Prepare a M.2_SSD (NGFF) module and the screw.

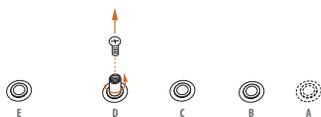


Step 2

Depending on the PCB type and length of your M.2_SSD (NGFF) module, find the corresponding nut location to be used.

No.	1	2	3	4	5
Nut Location	A	B	C	D	E
PCB Length	3cm	4.2cm	6cm	8cm	11cm
Module Type	Type2230	Type 2242	Type2260	Type 2280	Type 22110

Step 3



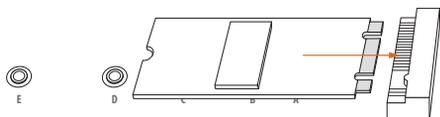
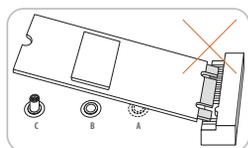
Move the standoff based on the module type and length.

The standoff is placed at the nut location D by default. Skip Step 3 and 4 and go straight to Step 5 if you are going to use the default nut. Otherwise, release the standoff by hand.

Step 4



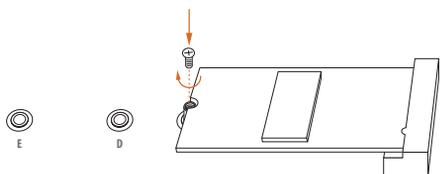
Peel off the yellow protective film on the nut to be used. Hand tighten the standoff into the desired nut location on the motherboard.



Step 5

Align and gently insert the M.2 (NGFF) SSD module into the M.2 slot. Please be aware that the M.2 (NGFF) SSD module only fits in one orientation.

Step 6



Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.

M.2_SSD (NGFF) Module Support List

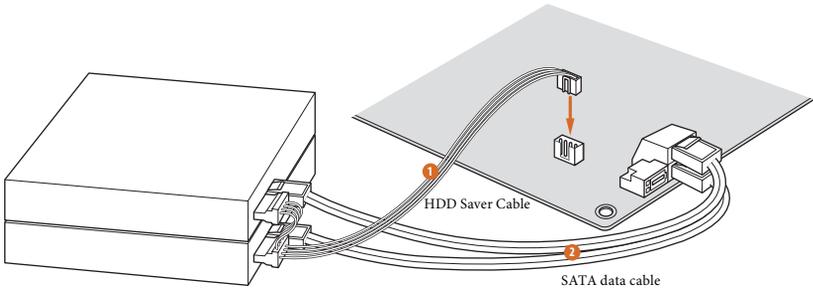
PCIe Interface	SATA Interface
Plextor PX-AG256M6e	ADATA AXNS381E-128GM-B
Plextor PX-AG512M6e	ADATA AXNS381E-256GM-B
SanDisk SD6PP4M-128G	Crucial CT120M500SSD4/120G
SanDisk SD6PP4M-256G	Crucial CT240M500SSD4/240G
Samsung XP941-512G (MZHPU512HCGL)	Intel SSDSCKGW080A401/80G
	Kingston RBU-SNS8400S3/180GD

For the latest updates of M.2_SSD (NFGG) module support list, please visit our website for details: <http://www.asrock.com>

2.10 HDD Saver Cable Installation Guide

The HDD Saver Connector on this motherboard allows you to switch on and off the connected HDDs via software when needed. This design secures more privacy, saves more energy, and extends the HDDs' lifespans. Please follow the steps below to install the HDD Saver Cable.

Connection Diagram



*The diagram shown here is for reference only.

1. Connect one end of the HDD Saver Cable to the **HDD Saver Connector (SATA_PWR_1)** placed near the SATA ports. Then connect the SATA power connector(s) to your SATA HDD(s).

* The HDD Saver Connector supports up to two SATA HDDs.

2. Connect one end of the SATA data cable to a SATA port on the motherboard. Then connect the other end to your SATA HDD(s).



For the software configuration, please refer to the section 3.2 "A-Tuning" in the user manual.

1 Einleitung

Vielen Dank, dass Sie sich für das FatalIty X99M Killer Series von ASRock entschieden haben – ein zuverlässiges Motherboard, das konsequent unter der strengen Qualitätskontrolle von ASRock hergestellt wurde. Es liefert ausgezeichnete Leistung mit robustem Design, das ASRocks Streben nach Qualität und Beständigkeit erfüllt.



Da die technischen Daten des Motherboards sowie die BIOS-Software aktualisiert werden können, kann der Inhalt dieser Dokumentation ohne Ankündigung geändert werden. Falls diese Dokumentation irgendwelchen Änderungen unterliegt, wird die aktualisierte Version ohne weitere Hinweise auf der ASRock-Webseite zur Verfügung gestellt. Sollten Sie technische Hilfe in Bezug auf dieses Motherboard benötigen, erhalten Sie auf unserer Webseite spezifischen Informationen über das von Ihnen verwendete Modell. Auch finden Sie eine aktuelle Liste unterstützter VGA-Karten und Prozessoren auf der ASRock-Webseite: ASRock-Webseite <http://www.asrock.com>.

1.1 Lieferumfang

- ASRock FatalIty X99M Killer Series – Motherboard (Micro-ATX-Formfaktor)
- ASRock FatalIty X99M Killer Series – Schnellinstallationsanleitung
- ASRock FatalIty X99M Killer Series – Support-CD
- 1 x E/A-Blendenabschirmung
- 1 x ASRock SLI_Bridge-Karte
- 2 x Serial-ATA- (SATA) Datenkabel (optional)
- 1 x HDD-Saver-Kabel
- 1 x Schraube für Ultra M.2-Sockel

1.2 Technische Daten

- Plattform**
- Micro-ATX-Formfaktor
 - Leiterplatte mit hochdichtem Glasgewebe

- Prozessor**
- Unterstützt Intel® Core™ i7- und Xeon®-18-Kern-Prozessorenfamilie für LGA 2011-3-Socket
 - Digipower-Design
 - 12-Leistungsphasendesign
 - Unterstützt Intel® Turbo Boost 2.0-Technologie
 - Unterstützt Untied-Übertaktungstechnologie

- Chipsatz**
- Intel® X99

- Speicher**
- Vierkanal-DDR4-Speichertechnologie
 - 4 x DDR4-DIMM-Steckplätze
 - Unterstützt DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/ 2133/1866/1600/1333/1066 non-ECC, ungepufferter Speicher
- * Weitere Informationen finden Sie in der Speicherkompatibilitätsliste auf der ASRock-Webseite. (<http://www.asrock.com/>)
- Unterstützt ECC-lose RDIMM (Registered-DIMM)
 - Unterstützt DDR4 ECC, ungepufferter Speicher/RDIMM mit Intel® Xeon®-Prozessoren der E5-Serie im LGA 2011-3-Sockel
 - Systemspeicher, max. Kapazität: 64GB (siehe ACHTUNG)
 - Unterstützt Intel® Extreme Memory Profile (XMP)2.0
 - 15-µ-Goldkontakt in DIMM-Steckplätze

- Erweiterungsteckplatz**
- 2 x PCI Express 3.0 x16-Steckplätze (PCIE1 im x16-Modus; PCIE2 im x16-Modus)
- * Wenn Sie einen Prozessor mit 28 Lanes installieren, laufen PCIE1/PCIE2 bei x16/x8.
- 1 x PCI-Express 2.0-x16-Steckplatz (PCIE3: x4-Modus)
 - Unterstützt AMD™ Quad CrossFireX™ und CrossFireX™
 - NVIDIA® Quad SLI™ und SLI™
 - 15-µ-Goldkontakt in VGA-PCIe-Steckplatz (PCIE1 und PCIE2)

Audio

- 7.1-Kanal-HD-Audio mit Inhaltsschutz (Realtek ALC1150-Audiocodec)
- Erstklassige Blu-ray-Audiounterstützung
- Unterstützt Überspannungsschutz (ASRock Full Spike Protection)
- Unterstützt Purity Sound™ 2
 - Nichicon-Audiokappen der Fine Gold-Serie
 - 115-dB-SRV-DAC mit Differentialverstärker
 - TI® NE5532 – erstklassiger Headset-Verstärker (unterstützt Headsets mit bis zu 600 Ohm)
 - Direct Drive Technology
 - Abdeckung mit EMV-Abschirmung
 - PCB-isolierte Abschirmung
- Unterstützt DTS Connect

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200-Serie (PCIe x1 Gigabit LAN 10/100/1000 Mb/s)
- Unterstützt Qualcomm® Atheros® Security Wake On Internet-Technologie (am Qualcomm® Atheros® Killer™ E2200-Serie)
- Unterstützt Wake-On-LAN
- Unterstützt Blitzschutz/Schutz gegen elektrostatische Entladung (ASRock Full Spike Protection)
- Unterstützt energieeffizientes Ethernet 802.3az
- Unterstützt PXE

**Rückblende,
E/A**

- 1 x PS/2-Maus-/Tastaturanschluss
- 1 x Optischer SPDIF-Ausgang
- 1 x eSATA-Anschluss
- 3 x USB 2.0-Ports (unterstützt Schutz gegen elektrostatische Entladung (ASRock Full Spike Protection))
- 1 x Fatal1ty-Mausport (USB 2.0) (unterstützt Schutz gegen elektrostatische Entladung (ASRock Full Spike Protection))
- 4 x USB 3.0-Ports (unterstützt Schutz gegen elektrostatische Entladung (ASRock Full Spike Protection))
- 2 x RJ-45-LAN-Ports mit LED (Aktivität/Verbindung-LED und Geschwindigkeit-LED)
- 1 x CMOS-löschen-Schalter
- HD-Audioanschlüsse: Hintere Lautsprecher / Zentral / Bass / Line-in / Vorderer Lautsprecher / Mikrofon

Speicher

- 10 x SATA-III-6,0-Gb/s-Anschlüsse, unterstützt RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage Technology 13), NCQ, AHCI, Hot-Plugging und ASRock HDD-Saver-Technologie
(S_SATA3_3-Anschluss wird mit eSATA-Port geteilt)
(S_SATA3_2-Anschluss wird mit Ultra M.2 Socket geteilt)
- * RAID wird nur an den Ports SATA3_0 bis SATA3_5 unterstützt.
- 1 eSATA-Anschluss, unterstützt NCQ, AHCI und Hot Plug
 - 1 Ultra M.2-Sockel, unterstützt M.2-SATA3-6-Gb/s-Modul und M.2-PCI Express-Modul bis Gen3 x4 (32 Gb/s)

Anschluss

- 1 x COM-Anschluss-Stiftleiste
- 1 x TPM-Stiftleiste
- 1 x Betrieb-LED-Stiftleiste
- 2 x CPU-Lüfteranschlüsse (1 x 4-polig, 1 x 3-polig)
- 2 x Gehäuselüfteranschlüsse (1 x 4-polig, 1 x 3-polig) (Intelligente Lüftergeschwindigkeitssteuerung)
- 1 x Netzteil Lüfteranschluss (3-polig)
- 1 x 24-poliger ATX-Netzanschluss
- 1 x 8-poliger 12-V-Netzanschluss (hochdichter Netzanschluss)
- 1 x HDD-Saver-Anschluss
- 1 x PCIe-Netzanschluss
- 1 x Audioanschluss an Frontblende
- 1 x Thunderbolt-Erweiterungskartenanschluss
- 2 x USB 2.0-Stiftleisten (unterstützen 4 USB 2.0-Ports) (unterstützt Schutz gegen elektrostatische Entladung (ASRock Full Spike Protection))
- 1 x USB 3.0-Stiftleisten (unterstützen 2 USB 3.0-Ports) (unterstützt Schutz gegen elektrostatische Entladung (ASRock Full Spike Protection))
- 1 x Dr. Debug mit LED
- 1 x Ein-/Austaste mit LED
- 1 x Reset-Taste mit LED
- 1 x BIOS-Auswahlschalter

**BIOS-
Funktion**

- 2 x 128-Mb-AMI-UEFI-Legal-BIOS mit Unterstützung mehrsprachiger grafischer Benutzerschnittstellen (1 x Haupt-BIOS und 1 x Ausfall-BIOS)
- Unterstützt UEFI-Technologie (zuverlässige Sicherung)
- ACPI 1.1-konforme Aufweckereignisse
- SMBIOS 2.3.1-Unterstützung
- CPU, DRAM, PCH 1,05 V, PCH 1,5 V, VPPM / Mehrfachspannungsanpassung

**Hard-
wareüber-
wachung**

- CPU-/Gehäusetemperaturerkennung
- CPU/Gehäuse/Netzteil-Lüftertachometer
- Lautloser CPU-/Gehäuselüfter (automatische Anpassung der Gehäuselüftergeschwindigkeit durch CPU-Temperatur)
- CPU-/Gehäuselüfter-Mehrfachgeschwindigkeitssteuerung
- Spannungsüberwachung: +12 V, +5 V, +3,3 V, CPU-Eingangsspannung, interne CPU-Spannung

**Betriebs-
system**

- Microsoft® Windows® 10, 64 Bit / 8.1, 32 Bit / 8.1, 64 Bit / 8, 32 Bit / 8, 64 Bit / 7, 32 Bit / 7, 64 Bit

**Zertifizier-
ungen**

- FCC, CE, WHQL
- ErP/EuP ready (ErP/EuP ready-Netzteil erforderlich)

* Detaillierte Produktinformationen finden Sie auf unserer Webseite: <http://www.asrock.com>



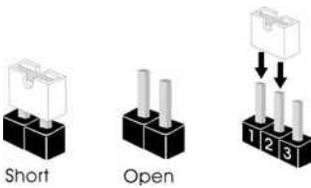
Bitte beachten Sie, dass mit einer Übertaktung, zu der die Anpassung von BIOS-Einstellungen, die Anwendung der Untied Overclocking Technology oder die Nutzung von Übertaktungswerkzeugen von Drittanbietern zählen, bestimmte Risiken verbunden sind. Eine Übertaktung kann sich auf die Stabilität Ihres Systems auswirken und sogar Komponenten und Geräte Ihres Systems beschädigen. Sie sollte auf eigene Gefahr und eigene Kosten durchgeführt werden. Wir übernehmen keine Verantwortung für mögliche Schäden, die durch eine Übertaktung verursacht wurden.



Aufgrund von Beschränkungen kann die Größe des tatsächlich für die Systemnutzung reservierten Speichers unter Windows®-Betriebssystemen mit 32 Bit weniger als 4 GB betragen. Windows®-Betriebssysteme mit 64 Bit haben keine derartigen Beschränkungen. Mit ASRock XFast RAM können Sie den Speicher einsetzen, den Windows® nicht nutzen kann.

1.3 Jumpereinstellung

Die Abbildung zeigt, wie die Jumper eingestellt werden. Wenn die Jumper-Kappe auf den Kontakten angebracht ist, ist der Jumper „kurzgeschlossen“. Wenn keine Jumper-Kappe auf den Kontakten angebracht ist, ist der Jumper „offen“. Die Abbildung zeigt einen 3-poligen Jumper, dessen Kontakt 1 und Kontakt 2 „kurzgeschlossen“ sind, wenn eine Jumper-Kappe auf diesen 2 Kontakten angebracht ist.



CMOS-löschen-Jumper
(CLRCMOS1)
(siehe S. 1, Nr. 20)



CLRCMOS1 ermöglicht Ihnen die Löschung der Daten im CMOS. Zum Löschen und Rücksetzen der Systemparameter auf die Standardeinrichtung schalten Sie den Computer bitte ab und ziehen das Netzkabel aus der Steckdose. Warten Sie 15 Sekunde, schließen Sie dann Kontakt 2 und Kontakt 3 an CLRCMOS1 5 Sekunden lang mit einer Jumper-Kappe kurz. Löschen Sie den CMOS jedoch nicht direkt nach der BIOS-Aktualisierung. Falls Sie den CMOS direkt nach Abschluss der BIOS-Aktualisierung löschen müssen, starten Sie das System zunächst; fahren Sie es dann vor der CMOS-Löschung herunter. Bitte beachten Sie, dass Kennwort, Datum, Zeit und Benutzerstandardprofil nur gelöscht werden, wenn die CMOS-Batterie entfernt wird.



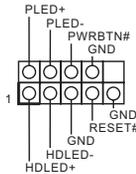
Der CMOS-löschen-Schalter hat dieselbe Funktion wie der CMOS-löschen-Jumper.

1.4 Integrierte Stiftleisten und Anschlüsse



Integrierte Stiftleisten und Anschlüsse sind KEINE Jumper. Bringen Sie KEINE Jumper-Kappen an diesen Stiftleisten und Anschlüssen an. Durch Anbringen von Jumper-Kappen an diesen Stiftleisten und Anschlüssen können Sie das Motherboard dauerhaft beschädigen.

Systemblende-Stiftleiste
(9-polig, PANEL1)
(siehe S. 1, Nr. 17)



Verbinden Sie Netzschalter, Reset-Taste und Systemstatusanzeige am Gehäuse entsprechend der nachstehenden Pinbelegung mit dieser Stiftleiste. Beachten Sie vor Anschließen der Kabel die positiven und negativen Kontakte.



PWRBTN (Ein-/Austaste):

Mit der Ein-/Austaste an der Frontblende des Gehäuses verbinden. Sie können die Abschaltung Ihres Systems über die Ein-/Austaste konfigurieren.

RESET (Reset-Taste):

Mit der Reset-Taste an der Frontblende des Gehäuses verbinden. Starten Sie den Computer über die Reset-Taste neu, wenn er abstürzt oder sich nicht normal neu starten lässt.

PLED (Systembetriebs-LED):

Mit der Betriebsstatusanzeige an der Frontblende des Gehäuses verbinden. Die LED leuchtet, wenn das System läuft. Die LED blinkt, wenn sich das System im S1/S3-Ruhezustand befindet. Die LED ist aus, wenn sich das System im S4-Ruhezustand befindet oder ausgeschaltet ist (S5).

HDLED (Festplattenaktivitäts-LED):

Mit der Festplattenaktivitäts-LED an der Frontblende des Gehäuses verbinden. Die LED leuchtet, wenn die Festplatte Daten liest oder schreibt.

Das Design der Frontblende kann je nach Gehäuse variieren. Ein Frontblendenmodul besteht hauptsächlich aus Ein-/Austaste, Reset-Taste, Betrieb-LED, Festplattenaktivitäts-LED, Lautsprecher etc. Stellen Sie beim Anschließen Ihres Frontblendenmoduls an diese Stiftleiste sicher, dass Kabel- und Pinbelegung richtig abgestimmt sind.

Betrieb-LED-Stiftleiste
(3-polig, PLED1)
(siehe S. 1, Nr. 16)



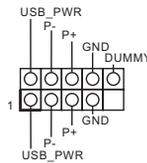
Bitte verbinden Sie die Betrieb-LED des Gehäuses zur Anzeige des Systembetriebsstatus mit dieser Stiftleiste.

Serial-ATA-III-Anschlüsse
(S_SATA3_0_1:
siehe S. 1, Nr. 10)
(S_SATA3_2_3:
siehe S. 1, Nr. 12)
(SATA3_0_3:
siehe S. 1, Nr. 13)
(SATA3_1_4:
siehe S. 1, Nr. 14)
(SATA3_2_5:
siehe S. 1, Nr. 15)



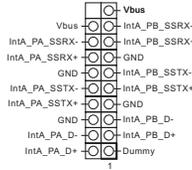
Diese zehn SATA-III-Anschlüsse unterstützen SATA-Datenkabel für interne Speichergeräte mit einer Datenübertragungsgeschwindigkeit bis 6,0 Gb/s. Falls der eSATA-Port am hinteren E/A angeschlossen wurde, funktioniert der interne S_SATA3_3-Anschluss nicht. Bei Bestückung des Ultra M.2-Sockels ist der interne S_SATA3_2-Port ohne Funktion.
* RAID wird nur an den Ports SATA3_0 bis SATA3_5 unterstützt.

USB 2.0-Stiftleisten
(9-polig, USB5_6)
(siehe S. 1, Nr. 24)
(9-polig, USB7_8)
(siehe S. 1, Nr. 23)



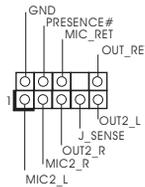
Neben vier USB 2.0-Ports an der E/A-Blende befinden sich zwei Stiftleisten an diesem Motherboard. Jede USB 2.0-Stiftleiste kann zwei Ports unterstützen.

USB 3.0-Stiftleisten
(19-polig, USB3_5_6)
(siehe S. 1, Nr. 8)



Neben vier USB 3.0-Ports an der E/A-Blende befindet sich eine Stiftleiste an diesem Motherboard. Jede USB 3.0-Stiftleiste kann zwei Ports unterstützen.

Audiostiftleiste
(Frontblende)
(9-polig, HD_AUDIO1)
(siehe S. 1, Nr. 28)

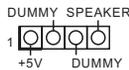


Diese Stiftleiste dient dem Anschließen von Audiogeräten an der Frontblende.



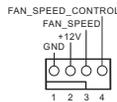
1. High Definition Audio unterstützt Anschlusserkennung, der Draht am Gehäuse muss dazu jedoch HDA unterstützen. Bitte befolgen Sie zum Installieren Ihres Systems die Anweisungen in unserer Anleitung und der Anleitung zum Gehäuse.
2. Bei Nutzung eines AC'97-Audiopanel dieses bitte anhand folgender Schritte an der Audiostiftleiste der Frontblende installieren:
 - A. Mic_IN (Mikrofon) mit MIC2_L verbinden.
 - B. Audio_R (RIN) mit OUT2_R und Audio_L (LIN) mit OUT2_L verbinden.
 - C. Erde (GND) mit Erde (GND) verbinden.
 - D. MIC_RET und OUT_RET sind nur für das HD-Audiopanel vorgesehen. Sie müssen sie nicht für das AC'97-Audiopanel verbinden.
 - E. Rufen Sie zum Aktivieren des vorderen Mikrofons das „FrontMic (Vorderes Mikrofon)“-Register in der Realtek-Systemsteuerung auf und passen „Recording Volume (Aufnahmelautstärke)“ an.

Gehäuselautsprecherstiftleiste
(4-polig, SPEAKER1)
(siehe S. 1, Nr. 21)



Bitte verbinden Sie den Gehäuselautsprecher mit dieser Stiftleiste.

Gehäuse- und Netzteil-lüfteranschlüsse
(4-polig, CHA_FAN1)
(siehe S. 1, Nr. 22)

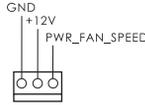


Bitte verbinden Sie die Lüfterkabel mit den Lüfteranschlüssen; der schwarze Draht gehört zum Erdungskontakt. CHA_FAN Lüftergeschwindigkeit kann über UEFI oder A-Tuning gesteuert werden.

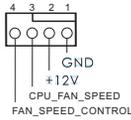
(3-polig, CHA_FAN2)
(siehe S. 1, Nr. 9)



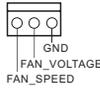
(3-polig, PWR_FAN1)
(siehe S. 1, Nr. 30)



CPU-Lüfteranschlüsse
(4-polig, CPU_FAN1)
(siehe S. 1, Nr. 4)

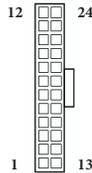


(3-polig, CPU_FAN2)
(siehe S. 1, Nr. 5)



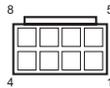
Dieses Motherboard bietet einen 4-poligen CPU-Lüfteranschluss (lautloser Lüfter). Falls Sie einen 3-poligen CPU-Lüfter anschließen möchten, verbinden Sie ihn bitte mit Kontakt 1 bis 3.

ATX-Netzanschluss
(24-polig, ATXPWR1)
(siehe S. 1, Nr. 7)



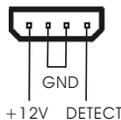
Dieses Motherboard bietet einen 24-poligen ATX-Netzanschluss. Bitte schließen Sie es zur Nutzung eines 20-poligen ATX-Netzteils entlang Kontakt 1 und Kontakt 13 an.

ATX-12-V-Netzanschluss
(8-polig, ATX12V1)
(siehe S. 1, Nr. 2)



Dieses Motherboard bietet einen 8-poligen ATX-12-V-Netzanschluss. Bitte schließen Sie es zur Nutzung eines 4-poligen ATX-Netzteils entlang Kontakt 1 und Kontakt 5 an.

PCIe-Netzanschluss
(4-polig, PCIE_PWR1)
(siehe S. 1, Nr. 27)



Bitte verbinden Sie ein 4-poliges Molex-Netzkabel mit diesem Anschluss, wenn mehr als drei Grafikkarten installiert sind.

HDD-Saver-Anschluss
(4-polig, SATA_PWR_1)
(siehe S. 1, Nr. 11)



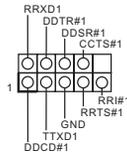
Bitte verbinden Sie zum Verwalten des Energiestatus der Festplatte das HDD-Saver-Kabel mit diesem Anschluss.

Thunderbolt-
Erweiterungskar-
tenanschluss
(5-polig, TBT1)
(siehe S. 1, Nr. 26)



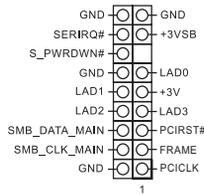
Bitte verbinden Sie ein serielles
5-poliges Kabel (GPIO-
Kabel) mit diesem Anschluss,
wenn Sie eine Thunderbolt™-
Erweiterungskarte installieren.

Serieller-Port-Stiftleiste
(9-polig, COM1)
(siehe S. 1, Nr. 25)



Diese Stiftleiste
unterstützt ein Modul für
serielle Ports.

TPM-Stiftleiste
(17-polig, TPMS1)
(siehe S. 1, Nr. 6)



Dieser Anschluss unterstützt
das Trusted Platform Module-
(TPM) System, das Schlüssel,
digitale Zertifikate, Kennwörter
und Daten sicher aufbewahren
kann. Ein TPM-System hilft
zudem bei der Stärkung
der Netzwerksicherheit,
schützt digitale Identitäten
und gewährleistet die
Plattformintegrität.

1.5 Intelligente Schalter

Das Motherboard hat vier intelligente Schalter: Ein-/Ausschalter, Reset-Schalter, CMOS-löschen-Schalter und ein BIOS-Auswahlschalter, wodurch Benutzer das System schnell ein-/abschalten, zurücksetzen, die CMOS-Werte löschen oder von einem anderen BIOS starten können.

Ein-/Ausschalter
(PWRBTN)
(siehe S. 1, Nr. 18)



Mit dem Ein-/Ausschalter kann der Benutzer das System schnell ein-/abschalten.

Reset-Schalter
(RSTBTN)
(siehe S. 1, Nr. 19)



Der Reset-Taste ermöglicht das schnelle Zurücksetzen des Systems.

CMOS-löschen-Schalter
(CLRBTN)
(siehe Seite 3, Nr. 15)



Mit dem CMOS-löschen-Schalter können Benutzer die CMOS-Werte schnell löschen.



Diese Funktion ist nur verfügbar, wenn Sie Ihren Computer abschalten und die Stromversorgung unterbrechen.

BIOS-Auswahlschalter
(BIOS_SEL1)
(siehe S. 1, Nr. 29)



Der BIOS-Auswahlschalter ermöglicht dem System, von BIOS A oder BIOS B zu starten.



Dieses Motherboard verfügt über zwei BIOS-Chips, ein primäres BIOS (BIOS_A) und ein Ausfall-BIOS (BIOS_B), die Sicherheit und Stabilität Ihres Systems steigern. Normalerweise läuft das System über das primäre BIOS. Falls das primäre BIOS jedoch beschädigt ist oder ausfällt, stellen Sie den BIOS-Auswahlschalter einfach auf „B“ um; dann übernimmt das Ausfall-BIOS beim nächsten Systemstart. Duplizieren Sie dann mit „Secure Backup UEFI“ im UEFI-Einrichtungsprogramm zur Gewährleistung eines normalen Systembetriebs eine Arbeitskopie der BIOS-Dateien am primären BIOS. Aus Sicherheitsgründen können Benutzer das Ausfall-BIOS nicht manuell aktualisieren. Sie können das aktuell aktivierte BIOS anhand der BIOS-LEDs (BIOS_A_LED oder BIOS_B_LED) bestimmen.

1 Introduction

Nous vous remercions d'avoir acheté cette carte mère ASRock FatalIty X99M Killer Series, une carte mère fiable fabriquée conformément au contrôle de qualité rigoureux et constant appliqué par ASRock. Fidèle à son engagement de qualité et de durabilité, ASRock vous garantit une carte mère de conception robuste aux performances élevées.



Les spécifications de la carte mère et du logiciel BIOS pouvant être mises à jour, le contenu de ce document est soumis à modification sans préavis. En cas de modifications du présent document, la version mise à jour sera disponible sur le site Internet ASRock sans notification préalable. Si vous avez besoin d'une assistance technique pour votre carte mère, veuillez visiter notre site Internet pour plus de détails sur le modèle que vous utilisez. La liste la plus récente des cartes VGA et des processeurs pris en charge est également disponible sur le site Internet de ASRock. Site Internet ASRock <http://www.asrock.com>.

1.1 Contenu de l'emballage

- Carte mère ASRock FatalIty X99M Killer Series (facteur de forme Micro ATX)
- Guide d'installation rapide ASRock FatalIty X99M Killer Series
- CD d'assistance ASRock FatalIty X99M Killer Series
- 1 x panneau de protection E/S
- 1 x carte ASRock SLI_Bridge
- 2 x câbles de données Serial ATA (SATA) (Optionnel)
- 1 x câble de sauvegarde HDD
- 1 x vis pour Ultra M.2 Socket

1.2 Spécifications

- Plate-forme**
- Facteur de forme Micro ATX
 - PCB en tissu de verre haute densité

- Processeur**
- Prends en charge les familles de processeurs Intel® Core™ i7 et Xeon® pour le socket LGA 2011-3
 - Conception Digi Power
 - Alimentation à 12 phases
 - Prend en charge la technologie Intel® Turbo Boost 2.0
 - Prend en charge la technologie Untied Overclocking

- Chipset**
- Intel® X99

- Mémoire**
- Technologie de mémoire quadri-canal DDR4
 - 4 x fentes DIMM DDR4
 - Prend en charge les mémoires sans tampon non ECC DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/2133/1866/1600/1333/1066
- * Veuillez consulter la liste de prise en charge des mémoires sur le site Web d'ASRock pour de plus amples informations. (<http://www.asrock.com/>)
- Prend en charge RDIMM non-ECC (RDIMM enregistrée)
 - Prend en charge DDR4 ECC, la mémoire sans mise en tampon/RDIMM avec la série de processeurs Intel® Xeon® E5 sur le socket LGA 2011-3
 - Capacité max. de la mémoire système : 64Go (voir AVERTISSEMENT)
 - Prend en charge Intel® Extreme Memory Profile (XMP)2.0
 - Contacts dorés 15µ sur fentes DIMM

- Fente d'expansion**
- 2 x PCI Express 3.0 x16 emplacements (mode PCIE1 @ x16 ; mode PCIE2 @ x16)
- * Si vous installez un processeur avec 28 voies, PCIE1/PCIE2 fonctionnent à x16/x8.
- 1 x fente PCI Express 2.0 x16 (PCIE3 :mode x4)
 - Prend en charge AMD Quad CrossFireX™ and CrossFireX™
 - Prend en charge NVIDIA® Quad SLI™ et SLI™
 - Contact doré 15µ dans fente VGA PCIe (PCIE1 et PCIE2)

Audio

- Audio 7.1 CH HD avec protection du contenu (codec audio Realtek ALC1150)
- Compatible audio Blu-ray Premium
- Protection contre les surtensions (Protection complète contre les pics ASRock)
- Prend en charge Purity Sound™ 2
 - Couvertures audio série en or fin Nichicon
 - 115dB SNR DAC avec amplificateur différentiel
 - Amplificateur de casque TI® NE5532 Premium (prend en charge les casques jusqu'à 600 Ohms)
 - Technologie Direct Drive
 - Capot à blindage EMI
 - Blindage isolant PCB
- Prend en charge DTS Connect

Réseau

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ série E2200 (PCIE x1 Gigabit LAN 10/100/1000 Mb/s)
- Prend en charge la technologie Qualcomm® Atheros® Security Wake On sur Internet (sur Qualcomm® Atheros® Killer™ série E2200)
- Prend en charge la fonction Wake-On-LAN
- Protection contre les orages/décharges électrostatiques (Protection complète contre les pics ASRock)
- Prend en charge la fonction d'économie d'énergie Ethernet 802.3az
- Prend en charge PXE

Connectique du panneau arrière

- 1 x port souris/clavier PS/2
- 1 x port sortie optique SPDIF
- 1 x connecteur eSATA
- 3 x ports USB 2.0 (Protection contre les décharges électrostatiques (Protection complète contre les pics ASRock))
- 1 x ports souris FatalIty (USB 2.0) (Protection contre les décharges électrostatiques (Protection complète contre les pics ASRock))
- 4 x ports USB 3.0 (Protection contre les décharges électrostatiques (Protection complète contre les pics ASRock))
- 2 x ports RJ-45 LAN avec LED (LED ACT/LIEN et LED VITESSE)
- 1 x bouton Clear CMOS
- Connecteurs jack audio HD : Haut-parleur arrière / central / basses / entrée ligne / haut-parleur avant / microphone

Stockage

- 10 x connecteurs SATA3 6,0 Gb/s, compatibles RAID (RAID 0, RAID 1, RAID 5, RAID 10, technologies Intel Rapid Storage 13), NCQ, AHCI, « Hot Plug » et sauvegarde HDD ASRock
(le connecteur S_SATA3_3 est partagé avec le port eSATA)
(le connecteur S_SATA3_2 est partagé avec le Ultra M.2 Socket)

* RAID est uniquement pris en charge sur les ports SATA3_0 ~ SATA3_5.

- 1 x connecteur eSATA, compatible avec les fonctions NCQ, AHCI et « Hot Plug »
- 1 x socket Ultra M.2, prend en charge un module 6,0 Gb/s M.2 SATA3 et un module M.2 PCI Express jusqu'à Gen3 x4 (32 Gb/s)

Connectique

- 1 x embase pour port COM
- 1 x embase TPM
- 1 x embase LED d'alimentation
- 2 x connecteurs pour ventilateur de processeur (1 x 4 broches, 1 x 3 broches)
- 2 x connecteurs pour ventilateur de châssis (1 x 4 broches, 1 x 3 broches) (Contrôle intelligent de la vitesse du ventilateur)
- 1 x connecteur pour ventilateur d'alimentation (3 broches)
- 1 x connecteur d'alimentation ATX 24 broches
- 1 x connecteur d'alimentation 12 V 8 broches (connecteur d'alimentation haute densité)
- 1 x connecteur de sauvegarde HDD
- 1 x connecteur d'alimentation PCIe
- 1 x connecteur audio panneau frontal
- 1 x connecteur Thunderbolt AIC
- 2 x embases USB 2.0 (4 ports USB 2.0 pris en charge) (Protection contre les décharges électrostatiques (Protection complète contre les pics ASRock))
- 1 x embases USB 3.0 (2 ports USB 3.0 pris en charge) (Protection contre les décharges électrostatiques (Protection complète contre les pics ASRock))
- 1 x Dr Debug avec témoin LED
- 1 x bouton de mise en marche avec témoin LED
- 1 x bouton de réinitialisation avec témoin LED
- 1 x bouton de sélection du BIOS

Caractéristiques du BIOS

- 2 x BIOS UEFI AMI 128 Mo légaux avec prise en charge interface graphique multilingue (1 x BIOS principal et 1 x BIOS de sauvegarde)
- Prend en charge la technologie de sauvegarde sécurisée UEFI
- Compatible ACPI 1.1 Wake Up Events
- Prend en charge SMBIOS 2.3.1

- Réglage de la tension CPU, DRAM, PCH 1.05V, PCH 1.5V, VPPM

Surveillance du matériel

- Détection de la température du processeur/châssis
- Tachéomètre processeur/châssis/ventilateur d'alimentation
- Ventilateur silencieux processeur/châssis (réglage automatique de la vitesse du ventilateur du châssis d'après la température du processeur)
- Contrôle simultané des vitesses des ventilateurs processeur/châssis
- Surveillance de la tension d'alimentation : +12 V, +5 V, +3,3 V, tension d'entrée du processeur, tensions internes du processeur

Système d'exploitation

- Microsoft® Windows® 10 64 bits / 8.1 32 bits / 8.1 64 bits / 8 32 bits / 8 64 bits / 7 32 bits / 7 64 bits

Certifications

- FCC, CE, WHQL
- ErP/EuP Ready (alimentation ErP/EuP ready require)

* pour des informations détaillées de nos produits, veuillez visiter notre site : <http://www.asrock.com>



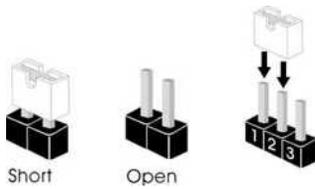
Il est important de signaler que l'overclocking présente certains risques, incluant des modifications du BIOS, l'application d'une technologie d'overclocking délicate et l'utilisation d'outils d'overclocking développés par des tiers. La stabilité de votre système peut être affectée par ces pratiques, voire provoquer des dommages aux composants et aux périphériques du système. L'overclocking se fait à vos risques et périls. Nous ne pourrions en aucun cas être tenus pour responsables des dommages éventuels provoqués par l'overclocking.



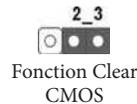
En raison de limitations dues au système d'exploitation, la capacité de mémoire utilisée sous Windows® 32-bit peut être inférieure à 4 Go. Cette limitation ne concerne pas les systèmes d'exploitation Windows® 64-bit. Vous pouvez utiliser ASRock XFast RAM pour utiliser la mémoire dont Windows® ne peut se servir.

1.3 Configuration des cavaliers (jumpers)

L'illustration ci-dessous vous renseigne sur la configuration des cavaliers (jumpers). Lorsque le capuchon du cavalier est installé sur les broches, le cavalier est « court-circuité ». Si le capuchon du cavalier n'est pas installé sur les broches, le cavalier est « ouvert ». L'illustration représente un cavalier à 3 broches dont les broches 1 et 2 sont « court-circuitées » si un capuchon de cavalier est posé sur ces 2 broches.



Cavalier Clear CMOS
(CLRCMOS1)
(voir p.1, No. 20)



CLRCMOS1 vous permet d'effacer les données de la CMOS. Pour effacer les paramètres du système et rétablir les valeurs par défaut, veuillez éteindre votre ordinateur et débrancher son cordon d'alimentation. Patientez 15 secondes, puis utilisez un capuchon de cavalier pour court-circuiter la broche 2 et la broche 3 sur CLRCMOS1 pendant 5 secondes. Toutefois, n'effacez pas la CMOS immédiatement après avoir mis à jour le BIOS. Si vous avez besoin d'effacer les données CMOS après une mise à jour du BIOS, vous devez tout d'abord redémarrer le système, puis l'éteindre avant de procéder à l'effacement de la CMOS. Veuillez noter que les paramètres mot de passe, date, heure et profil de l'utilisateur seront uniquement effacés en cas de retrait de la pile de la CMOS.



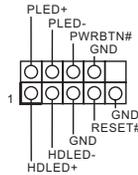
Le bouton Clear CMOS possède la même fonction que le cavalier (jumper) Clear CMOS.

1.4 Embases et connecteurs de la carte mère



Les embases et connecteurs situés sur la carte NE SONT PAS des cavaliers. Ne placez JAMAIS de capuchons de cavaliers sur ces embases ou connecteurs. Placer un capuchon de cavalier sur ces embases ou connecteurs endommagera irrémédiablement votre carte mère.

Embase du panneau système
(PANNEAU1 à 9 broches)
(voir p.1, No. 17)



Branchez le bouton de mise en marche, le bouton de réinitialisation et le témoin d'état du système présents sur le châssis sur cette embase en respectant la configuration des broches illustrée ci-dessous. Repérez les broches positive et négative avant de brancher les câbles.



PWRBTN (bouton d'alimentation):

pour brancher le bouton d'alimentation du panneau frontal du châssis. Vous pouvez configurer la façon dont votre système doit s'arrêter à l'aide du bouton de mise en marche.

RESET (bouton de réinitialisation):

pour brancher le bouton de réinitialisation du panneau frontal du châssis. Appuyez sur le bouton de réinitialisation pour redémarrer l'ordinateur en cas de plantage ou de dysfonctionnement au démarrage.

PLED (LED d'alimentation du système) :

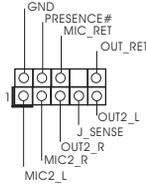
pour brancher le témoin d'état de l'alimentation du panneau frontal du châssis. Le LED est allumé lorsque le système fonctionne. Le LED clignote lorsque le système se trouve en mode veille S1/S3. Le LED est éteint lorsque le système se trouve en mode veille S4 ou hors tension (S5).

HDLED (LED d'activité du disque dur) :

pour brancher le témoin LED d'activité du disque dur du panneau frontal du châssis. Le LED est allumé lorsque le disque dur lit ou écrit des données.

La conception du panneau frontal peut varier en fonction du châssis. Un module de panneau frontal est principalement composé d'un bouton de mise en marche, bouton de réinitialisation, LED d'alimentation, LED d'activité du disque dur, haut-parleur etc. Lorsque vous reliez le module du panneau frontal de votre châssis sur cette embase, veuillez à parfaitement faire correspondre les fils et les broches.

Embase audio du panneau frontal
(HD_AUDIO1 à 9 broches)
(voir p.1, No. 28)

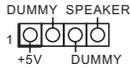


Cette embase sert au branchement des appareils audio au panneau audio frontal.



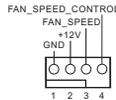
1. L'audio haute définition prend en charge la technologie Jack Sensing (détection de la fiche), mais le panneau grillagé du châssis doit être compatible avec la HDA pour fonctionner correctement. Veuillez suivre les instructions figurant dans notre manuel et dans le manuel du châssis pour installer votre système.
2. Si vous utilisez un panneau audio AC'97, veuillez le brancher sur l'embase audio du panneau frontal en procédant comme suit :
 - A. branchez Mic_IN (MIC) sur MIC2_L.
 - B. branchez Audio_R (RIN) sur OUT2_R et Audio_L (LIN) sur OUT2_L.
 - C. branchez la mise à terre (GND) sur mise à terre (GND).
 - D. MIC_RET et OUT_RET sont exclusivement réservés au panneau audio HD. Il est inutile de les brancher avec le panneau audio AC'97.
 - E. Pour activer le micro frontal, sélectionnez l'onglet « FrontMic » du panneau de contrôle Realtek et réglez le paramètre « Volume d'enregistrement ».

Embase du haut-parleur du châssis
(SPEAKER1 à 4 broches)
(voir p.1, No. 21)



Veuillez brancher le haut-parleur du châssis sur cette embase.

Connecteurs du châssis et de l'alimentation du ventilateur
(CHA_FAN1 à 4 broches)
(voir p.1, No. 22)

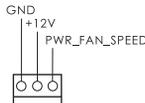


Veuillez brancher les câbles du ventilateur sur les connecteurs du ventilateur, puis reliez le fil noir à la broche de mise à terre. La vitesse des ventilateurs CHA_FAN peut être réglée avec UEFI ou A-Tuning.

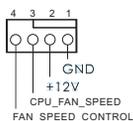
(CHA_FAN2 à 3 broches)
(voir p.1, No. 9)



(PWR_FAN1 à 3 broches)
(voir p.1, No. 30)

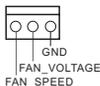


Connecteurs du ventilateur du processeur (CPU_FAN1 à 4 broches) (voir p.1, No. 4)

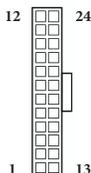


Cette carte mère est dotée d'un connecteur pour ventilateur de processeur (Quiet Fan) à 4 broches. Si vous envisagez de connecter un ventilateur de processeur à 3 broches, veuillez le brancher sur la Broche 1-3.

(CPU_FAN2 à 3 broches) (voir p.1, No. 5)

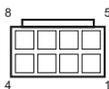


Connecteur d'alimentation ATX (ATXPWR1 à 24 broches) (voir p.1, No. 7)



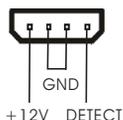
Cette carte mère est dotée d'un connecteur d'alimentation ATX à 24 broches. Pour utiliser une alimentation ATX à 20 broches, veuillez effectuer les branchements sur la Broche 1 et la Broche 13.

Connecteur d'alimentation ATX 12V (ATX12V1 à 8 broches) (voir p.1, No. 2)



Cette carte mère est dotée d'un connecteur d'alimentation ATX 12V à 8 broches. Pour utiliser une alimentation ATX à 4 broches, veuillez effectuer les branchements sur la Broche 1 et la Broche 5.

Connecteur d'alimentation PCIe (PCIE_PWR1 à 4 broches) (voir p.1, No. 27)



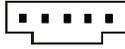
Veillez connecter un câble d'alimentation molex à 4 broches à ce connecteur lorsque plus de trois cartes graphiques sont installées.

Connecteur sauvegarde HDD (SATA_PWR_1 à 4 broches) (voir p.1, No. 11)



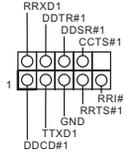
Veillez connecter le câble de sauvegarde HDD à ce connecteur pour gérer l'état d'alimentation du HDD.

Connecteur Thunderbolt AIC (TBT1 à 5 broches) (voir p.1, No. 26)



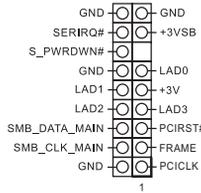
Veillez connecter un câble de signal à 5 broches (câble GPIO) à ce connecteur lorsque vous utilisez une carte d'extension Thunderbolt™ (AIC).

Embase pour port série (COM1 à 9 broches) (voir p.1, No. 25)



Cette embase prend en charge un module de port série.

Embase TPM (TPMS1 à 17 broches) (voir p.1, No. 6)



Ce connecteur prend en charge un module TPM (Trusted Platform Module – Module de plateforme sécurisée), qui permet de sauvegarder clés, certificats numériques, mots de passe et données en toute sécurité. Le système TPM permet également de renforcer la sécurité du réseau, de protéger les identités numériques et de préserver l'intégrité de la plateforme.

1.5 Boutons intelligents

La carte mère est équipée de quatre boutons intelligents : bouton de mise en marche, bouton de réinitialisation, bouton d'effacement CMOS et bouton de sélecteur de BIOS qui permettent aux utilisateurs d'allumer/éteindre le système, de réinitialiser le système, d'effacer les valeurs CMOS en toute simplicité ou de démarrer depuis un BIOS différent.

Bouton de mise en marche
(PWRBTN)
(voir p.1, No. 18)



Le bouton de mise en marche permet aux utilisateurs d'allumer le système rapidement.

Bouton de réinitialisation
(RSTBTN)
(voir p.1, No. 19)



Le bouton de réinitialisation permet aux utilisateurs de réinitialiser le système rapidement.

Bouton d'effacement CMOS
(CLRBTN)
(voir p.3, No. 15)



Le bouton d'effacement CMOS permet aux utilisateurs d'effacer les valeurs CMOS



Cette fonction est uniquement disponible lorsque l'ordinateur est éteint et son cordon d'alimentation débranché.

Interrupteur de sélection du BIOS
(BIOS_SEL1)
(voir p.1, No. 29)



Le sélecteur du BIOS permet au système de démarrer depuis le BIOS A ou le BIOS B.



Cette carte mère est dotée de deux BIOS – un BIOS principal (BIOS_A), et un BIOS de sauvegarde (BIOS_B) – ce qui permet d'optimiser la protection et la stabilité du système. En règle générale, le système utilise le BIOS principal. Toutefois, si le BIOS principal venait à être corrompu ou endommagé, placez simplement le sélecteur en position « B » et le BIOS de secours prendra automatiquement le relais au redémarrage du système. Après cela, utilisez « Secure Backup UEFI » depuis l'utilitaire de configuration UEFI pour copier les fichiers BIOS vers le BIOS principal et rétablir le fonctionnement normal du système. Par souci de sécurité du système, l'utilisateur ne peut pas mettre à jour le BIOS de secours manuellement. Pour identifier le BIOS actif, l'utilisateur peut consulter les témoins LED du BIOS (LED_BIOS_A ou LED_BIOS_B).

1 Introduzione

Congratulazioni per l'acquisto della scheda madre ASRock Fatal1ty X99M Killer Series, una scheda madre affidabile prodotta secondo i severissimi controlli di qualità ASRock. La scheda madre offre eccellenti prestazioni con un design robusto che si adatta all'impegno di ASRock di offrire sempre qualità e durata.



Dato che le specifiche della scheda madre e del software BIOS possono essere aggiornate, il contenuto di questa documentazione sarà soggetto a variazioni senza preavviso. Nel caso di eventuali modifiche della presente documentazione, la versione aggiornata sarà disponibile sul sito Web di ASRock senza ulteriore preavviso. Per il supporto tecnico correlato a questa scheda madre, visitare il nostro sito Web per informazioni specifiche relative al modello attualmente in uso. È possibile trovare l'elenco di schede VGA più recenti e di supporto di CPU anche sul sito Web di ASRock. Sito Web di ASRock <http://www.asrock.com>.

1.1 Contenuto della confezione

- Scheda madre ASRock Fatal1ty X99M Killer Series (Form Factor Micro ATX)
- Guida all'installazione rapida di ASRock Fatal1ty X99M Killer Series
- CD di supporto di ASRock Fatal1ty X99M Killer Series
- 1 x mascherina metallica posteriore I/O
- 1 x schede ASRock SLI_Bridge
- 2 x cavi dati Serial ATA (SATA) (opzionali)
- 1 x Cavo HDD Saver
- 1 x viti per socket Ultra M.2

1.2 Specifiche

- Piattaforma**
- Fattore di forma Micro ATX
 - PBC di fibra di vetro ad alta densità

- CPU**
- Supporta la famiglia di processori Intel® Core™ i7 e Xeon® 18-Core per il socket LGA 2011-3
 - Design Digi Power
 - Potenza a 12 fasi
 - Supporta la tecnologia Intel® Turbo Boost 2.0
 - Supporta la tecnologia overlocking “slegata”

- Chipset**
- Intel® X99

- Memoria**
- Tecnologia memoria DDR4 Quad Channel
 - 4 x alloggi DIMM DDR4
 - Supporto di memoria DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/2133/1866/1600/1333/1066 non-ECC, unbuffered

* Per maggiori informazioni fare riferimento all'elenco dei supporti di memoria sul sito di ASRock. (<http://www.asrock.com/>)

- Supporta RDIMM non ECC (DIMM registrato)
- Supporta memoria/RDIMM DDR4 ECC, senza buffer con processori Intel® Xeon® serie E5 nel socket LGA 2011-3
- Capacità max. della memoria di sistema: 64GB (si veda la sezione ATTENZIONE)
- Supporta Intel® Extreme Memory Profile (XMP)2.0
- Contatti d'oro 15µ negli alloggi DIMM

- Slot di espansione**
- 2 x PCI Express 3.0 x16 slot (PCIE1 a modalità x16; PCIE2 a modalità x16)

* Se si installa una CPU a 28 corsie, PCIE1/PCIE2 funzioneranno a x16/x8.

- 1 x Alloggio PCI Express 2.0 x16 (PCIE3; modalità x4)
- Supporto di AMD Quad CrossFireX™ e CrossFireX™
- Supporta NVIDIA® Quad SLI™ e SLI™
- Contatti d'oro 15µ nell'alloggio VGA PCIe (PCIE1 e PCIE2)

Audio

- Audio HD a 7.1 canali con Content Protection (codec audio Realtek ALC1150)
- Supporto audio Blu-ray Premium
- Supporto protezione da sovratensione (protezione completa ASRock dai picchi di corrente)
- Supporto di Purity Sound™ 2
 - Cappucci audio Nichicon serie Fine Gold
 - 115dB SNR DAC con amplificatore differenziale
 - TI® NE5532 Premium Headset Amplifier (supporta cuffie fino a 600 Ohm)
 - Tecnologia Direct Drive
 - Copertura schermata EMI
 - Schermatura isolata PCB
- Supporta DTS Connect

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200 Series (PCIE x1 Gigabit LAN 10/100/1000 Mb/s)
- Supporta la tecnologia Qualcomm® Atheros® Security Wake On Internet (su Qualcomm® Atheros® Killer™ E2200 Series)
- Supporta Wake-On-LAN
- Supporto la protezione da fulmini/scariche elettrostatiche (ESD) (protezione completa ASRock dai picchi di corrente)
- Supporta Energy Efficient Ethernet 802.3az
- Supporta PXE

I/O pannello posteriore

- 1 x porta mouse/tastiera PS/2
- 1 x porta uscita SPDIF ottico
- 1 x connettore eSATA
- 3 x Porte USB 2.0 (supporto protezione da scariche elettrostatiche (ESD) (protezione completa ASRock dai picchi di corrente))
- 1 x Porta mouse FatalIty (USB 2.0) (supporto protezione da scariche elettrostatiche (ESD) (protezione completa ASRock dai picchi di corrente))
- 4 x Porte USB 3.0 (supporto protezione da scariche elettrostatiche (ESD) (protezione completa ASRock dai picchi di corrente))
- 2 x Porte RJ-45 LAN con LED (LED ACT/LINK e LED SPEED)
- 1 x interruttore per azzerare la CMOS
- Connettori audio HD: altoparlante posteriore/centrale/basso/ingresso linea/altoparlante anteriore/microfono

Archiviazi- one

- 10 x Connettori SATA3 6,0 Gb/s, supportano RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage Technology 13), NCQ, AHCI, Hot Plug e tecnologia ASRock HDD Saver (il connettore S_SATA3_3 è condiviso con la porta eSATA) (il connettore S_SATA3_2 è condiviso con la Ultra M.2 Socket)
- * RAID è supportato solo su porte SATA3_0 ~ SATA3_5.
- 1 x connettore eSATA, supporta le funzioni NCQ, AHCI e Hot Plug
- 1 x socket Ultra M.2, supporta modulo SATA3 M.2 da 6,0 Gb/s e modulo PCI Express M.2 fino a Gen3 x4 (32 Gb/s)

Connet- tore

- 1 x Collettore porta COM
- 1 x Collettore TMP
- 1 x Collettore LED alimentatore
- 2 x Connettori ventola CPU (1 x 4 pin, 1 x 3 pin)
- 2 x Connettori ventola telaio (1 x 4 pin, 1 x 3 pin) (Controllo intelligente della velocità della ventola)
- 1 x Connettore ventola alimentazione (3 pin)
- 1 x Connettore alimentazione ATX 24 pin
- 1 x Connettore alimentazione 12V 8-pin (connettore alimen-
tazione ad alta densità)
- 1 x Connettore HDD Saver
- 1 x Connettore alimentazione PCIe
- 1 Connettore audio pannello frontale
- 1 x Connettore Thunderbolt AIC
- 2 x Collettori USB 2.0 (supporto di 4 porte USB 2.0) (supporto protezione da scariche elettrostatiche (ESD) (protezione completa ASRock dai picchi di corrente))
- 1 x Collettori USB 3.0 (supporto di 2 porte USB 2.0) (supporto protezione da scariche elettrostatiche (ESD) (protezione completa ASRock dai picchi di corrente))
- 1 x Dr. Debug con LED
- 1 x interruttore d'alimentazione con LED
- 1 x interruttore di ripristino con LED
- 1 x interruttore di selezione BIOS

Funzione BIOS

- BIOS legale 2 x 128Mb AMI UEFI con supporto GUI multi-
lingue (1 x Main BIOS e 1 x Backup BIOS)
- Supporto della tecnologia Secure Backup UEFI
- Eventi di riattivazione conformi a ACPI 1.1
- Supporto SMBIOS 2.3.1
- Multiregolazione tensione CPU, DRAM, PCH 1,05 V, PCH 1,5 V, VPPM

**Hardware
Monitor**

- Rilevamento temperatura CPU/telaio
- Tachimetro CPU/chassis/ventola alimentazione
- Ventola silenziosa CPU/telaio (regolazione automatica velocità in base alla temperatura della CPU)
- Ventola CPU/chassis con controllo di varie velocità
- Monitoraggio tensione: +12V, +5V, +3,3V, tensione ingresso CPU, tensioni interne CPU

SO

- Microsoft® Windows® 10 64-bit / 8.1 32-bit / 8.1 64-bit / 8 32-bit / 8 64-bit / 7 32-bit / 7 64-bit

Certificazioni

- FCC, CE, WHQL
- ErP/EuP Ready (è necessaria alimentazione ErP/EuP ready)

* Per informazioni dettagliate sul prodotto, visitare il nostro sito Web: <http://www.asrock.com>



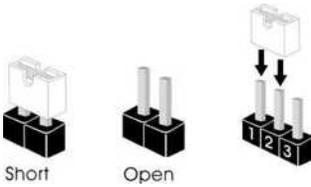
Prestare attenzione al potenziale rischio previsto nella pratica di overclocking, inclusa la regolazione delle impostazioni nel BIOS, l'applicazione di tecnologia di Untied Overclocking o l'utilizzo di strumenti di overclocking di terze parti. L'overclocking può influenzare la stabilità del sistema o perfino provocare danni ai componenti e ai dispositivi del sistema. Occorre eseguirlo a proprio rischio e spese. Non ci riterremo responsabili per possibili danni provocati da overclocking.



A causa della limitazione, l'effettiva dimensione della memoria può essere inferiore a 4 GB per riservare l'uso del sistema ai sistemi operativi di Windows® a 32 bit. I sistemi operativi Windows® a 64 bit non possiedono tali limitazioni. È possibile utilizzare la RAM XFast di ASRock per utilizzare la memoria che Windows® non può utilizzare.

1.3 Impostazione jumper

L'illustrazione mostra in che modo vengono impostati i jumper. Quando il cappuccio del jumper è posizionato sui pin, il jumper è "cortocircuitato". Se sui pin non è posizionato alcun cappuccio del jumper, il jumper è "aperto". L'illustrazione mostra un jumper a 3 pin i cui pin1 e pin2 sono "cortocircuitati" quando un cappuccio del jumper è posizionato su questi 2 pin.



Jumper per azzerare la CMOS
(CLRCMOS1)
(vedere pag. 1, n. 20)



CLRCMOS1 consente di azzerare i dati presenti nella CMOS. Per azzerare e reimpostare i parametri del sistema alla configurazione predefinita, spegnere il computer e scollegare il cavo di alimentazione dalla rete. Dopo aver atteso 15 secondi, utilizzare un cappuccio del jumper per cortocircuitare il pin2 e il pin3 su CLRCMOS1 per 5 secondi. Tuttavia, non azzerare la CMOS subito dopo aver aggiornato il BIOS. Se è necessario azzerare la CMOS dopo l'aggiornamento del BIOS, è necessario riavviare prima il sistema e in seguito spegnerlo prima di eseguire l'operazione di azzeramento della CMOS. La password, la data, l'ora e il profilo predefinito dell'utente saranno azzerati solo se viene rimossa la batteria della CMOS.



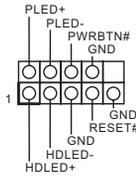
L'interruttore per azzerare la CMOS ha la stessa funzione del jumper per azzerare la CMOS.

1.4 Header e connettori sulla scheda



Gli header e i connettori sulla scheda NON sono jumper. NON posizionare cappucci del jumper su questi header e connettori. Il posizionamento di cappucci del jumper su header e connettori provocherà danni permanenti alla scheda madre.

Header sul pannello del sistema
(PANEL1 a 9 pin)
(vedere pag. 1, n. 17)



Collegare l'interruttore dell'alimentazione, l'interruttore di reset e l'indicatore dello stato del sistema sullo chassis su questo header secondo la seguente assegnazione dei pin. Annotare i pin positivi e negativi prima di collegare i cavi.



PWRBTN (interruttore di alimentazione):

collegare all'interruttore dell'alimentazione sul pannello anteriore dello chassis. È possibile configurare il modo in cui spegnere il sistema utilizzando l'interruttore dell'alimentazione.

RESET (interruttore di reset):

collegare all'interruttore di reset sul pannello anteriore dello chassis. Premere l'interruttore di reset per riavviare il computer se il computer si blocca e non riesce ad eseguire un normale riavvio.

PLED (LED alimentazione del sistema):

collegare all'indicatore di stato dell'alimentazione sul pannello anteriore dello chassis. Il LED è acceso quando il sistema è in funzione. Il LED continua a lampeggiare quando il sistema si trova nello stato di sospensione S1/S3. Il LED è spento quando il sistema si trova nello stato di sospensione S4 o quando è spento (S5).

HDLED (LED di attività disco rigido):

collegare al LED di attività disco rigido sul pannello anteriore dello chassis. Il LED è acceso quando il disco rigido sta leggendo o scrivendo dati.

Il design del pannello anteriore può cambiare a seconda dello chassis. Un modulo di pannello anteriore è composto principalmente da interruttore di alimentazione, interruttore di reset, LED di alimentazione, LED di attività disco rigido, altoparlante, ecc. Quando si collega il modulo del pannello anteriore dello chassis a questo header, accertarsi che le assegnazioni del filo e le assegnazioni del pin corrispondano correttamente.

Header LED di alimentazione (PLED1 a 3 pin) (vedere pag. 1, n. 16)



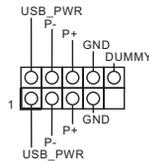
Collegare il LED di alimentazione chassis a questo header per indicare lo stato di alimentazione del sistema.

Connettori Serial ATA3 (S_SATA3_0_1: vedere pag. 1, n. 10) (S_SATA3_2_3: vedere pag. 1, n. 12) (SATA3_0_3: vedere pag. 1, n. 13) (SATA3_1_4: vedere pag. 1, n. 14) (SATA3_2_5: vedere pag. 1, n. 15)



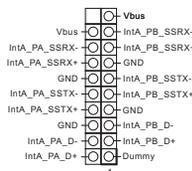
Questi dieci connettori SATA3 supportano cavi dati SATA per dispositivi di archiviazione interna, con una velocità di trasferimento dati fino a 6,0 Gb/s. Se la porta eSATA sul pannello posteriore I/O è collegata, il connettore S_SATA3_3 interno non funzionerà. Se il socket Ultra M.2 è occupato, il S_SATA3_2 interno non funzionerà. * RAID è supportato solo su porte SATA3_0 ~ SATA3_5.

Header USB 2.0 (USB5_6 a 9 pin) (vedere pag. 1, n. 24) (USB7_8 a 9 pin) (vedere pag. 1, n. 23)



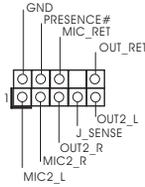
Oltre alle quattro porte USB 2.0 sul pannello I/O, su questa scheda madre vi sono due header. Ciascun header USB 2.0 può supportare due porte.

Header USB 3.0 (USB3_5_6 a 19 pin) (vedere pag. 1, n. 8)



Oltre alle quattro porte USB 3.0 sul pannello I/O, su questa scheda madre vi è un header. Ciascun header USB 3.0 può supportare due porte.

Header audio pannello anteriore (AUDIO1_HD a 9 pin) (vedere pag. 1, n. 28)

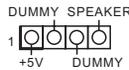


Questo header serve a collegare i dispositivi audio al pannello audio anteriore.



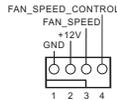
1. L'audio ad alta definizione supporta le funzioni Jack sensing, ma il filo del pannello sullo chassis deve supportare HDA per funzionare correttamente. Seguire le istruzioni presenti nel nostro manuale e nel manuale dello chassis per installare il sistema.
2. Se si utilizza un pannello audio AC'97, installarlo sull'header audio del pannello anteriore seguendo le fasi di seguito:
 - A. Collegare Mic_IN (MIC) a MIC2_L.
 - B. Collegare Audio_R (RIN) a OUT2_R e Audio_L (LIN) a OUT2_L.
 - C. Collegare Ground (GND) a Ground (GND).
 - D. MIC_RET e OUT_RET servono soltanto per il pannello audio HD. Non è necessario collegarli per il pannello audio AC'97.
 - E. Per attivare il microfono anteriore, andare alla scheda "FrontMic" nel pannello di controllo Realtek e regolare il "Volume di registrazione".

Header altoparlante chassis (SPEAKER1 a 4 pin) (vedere pag. 1, n. 21)



Collegare l'altoparlante dello chassis a questo header.

Connettori ventola dello chassis e di alimentazione (CHA_FAN1 a 4 pin) (vedere pag. 1, n. 22)

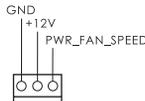


Collegare i cavi della ventola ai connettori della ventola e far corrispondere il filo nero al pin di terra. La velocità della ventola CHA_FAN può essere controllata tramite UEFI o A-Tuning

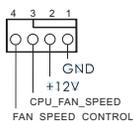
(CHA_FAN2 a 3 pin) (vedere pag. 1, n. 9)



(PWR_FAN1 a 3 pin) (vedere pag. 1, n. 30)



Connettori della ventola della CPU
(CPU_FAN1 a 4 pin)
(vedere pag. 1, n. 4)

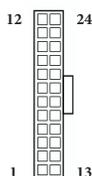


(CPU_FAN2 a 3 pin)
(vedere pag. 1, n. 5)



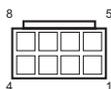
Questa scheda madre è dotata di un connettore per la ventola della CPU (Ventola silenziosa) a 4 pin. Se si decide di collegare una ventola della CPU a 3 pin, collegarla al pin 1-3.

Connettore di alimentazione ATX
(ATXPWR1 a 24 pin)
(vedere pag. 1, n. 7)



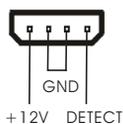
Questa scheda madre è dotata di un connettore di alimentazione ATX a 24 pin. Per utilizzare un'alimentazione ATX a 20 pin, collegarla lungo il pin1 e il pin 13.

Connettore di alimentazione ATX da 12 V
(ATX12V1 a 8 pin)
(vedere pag. 1, n. 2)



Questa scheda madre è dotata di un connettore di alimentazione ATX da 12 V a 8 pin. Per utilizzare un'alimentazione ATX a 4 pin, collegarla lungo il pin1 e il pin 5.

Connettore alimentazione PCIe
(4-pin PCIE_PWR1)
(vedere pag. 1, n. 27)



Collegare un cavo di alimentazione molex a 4 pin a questo connettore quando sono installate più di tre schede grafiche.

Connettore HDD Saver
(4-pin SATA_PWR1)
(vedere pag. 1, n. 11)



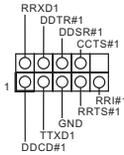
Collegare il cavo HDD Saver a questo connettore per gestire lo stato d'alimentazione dell'unità HDD.

Connettore Thunderbolt AIC
(TBT1 5-pin)
(vedere pag. 1, n. 26)



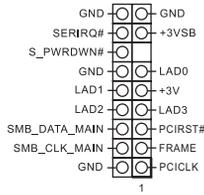
Collegare un cavo di segnale a 5 pin (cavo GPIO) a questo connettore quando si installa una scheda aggiuntiva Thunderbolt™ (AIC).

Header porta seriale
(COM1 a 9 pin)
(vedere pag. 1, n. 25)



Questo header supporta
un modulo di porta
seriale.

Header TPM
(TPMS1 a 17 pin)
(vedere pag. 1, n. 6)



Questo connettore supporta il
sistema Trusted Platform Module
(TPM), che può archiviare in
modo sicuro chiavi, certifi-
cati digitali, password e dati. Un
sistema TPM permette anche di
potenziare la sicurezza della rete,
di proteggere identità digitali e
di garantire l'integrità della piat-
taforma.

1.5 Interruttori intuitivi

La scheda madre è dotata di quattro interruttori intuitivi: Interruttore d'alimentazione, interruttore di ripristino, interruttore Clear CMOS ed un interruttore di selezione BIOS che consentono di accendere/spengere rapidamente il sistema, ripristinare il sistema, cancellare i valori CMOS oppure eseguire l'avvio su un BIOS diverso.

Interruttore
d'alimentazione
(PWRBTN)
(vedere pag. 1, n. 18)



L'interruttore
d'alimentazione consente
di accendere/spengere
rapidamente il sistema.

Interruttore di ripristino
(RSTBTN)
(vedere pag. 1, n. 19)



L'interruttore di ripristino
consente di ripristinare
rapidamente il sistema.

Interruttore Clear CMOS
(CLRBTN)
(vedere pag. 3, n. 15)



L'interruttore Clear
CMOS consente di
cancellare rapidamente i
valori CMOS.



Questa funzione è operativa solo quando si spegne il computer e si scollega l'alimentatore.

Interruttore selezione
BIOS
(BIOS_SEL1)
(vedere pag. 1, N. 29)



L'interruttore di selezione BIOS
consente di riavviare il sistema
dal BIOS A o dal BIOS B.



Questa scheda madre è dotata di due chip BIOS, un BIOS principale (BIOS_A) e un BIOS di backup (BIOS_B), che migliorano la sicurezza e la stabilità del sistema. Il sistema funziona normalmente sul BIOS principale. Tuttavia, se il BIOS principale è corrotto o danneggiato, basta semplicemente posizionare l'interruttore di selezione su "B" e il BIOS secondario si occuperà dell'avvio successivo del sistema. Quindi, usare "Secure Backup UEFI" in UEFI Setup Utility per duplicare una copia dei file BIOS sul BIOS primario per garantire il funzionamento normale del sistema. Per questioni di sicurezza, gli utenti non sono in grado di aggiornare il BIOS di backup manualmente. Gli utenti possono fare riferimento ai LED BIOS (BIOS_A_LED o BIOS_B_LED) per identificare quale BIOS è attualmente attivato.

1 Introducción

Gracias por comprar la placa base ASRock FatalIty X99M Killer Series , una placa base fiable fabricada según el rigurosísimo control de calidad de ASRock. Ofrece un rendimiento excelente con un diseño resistente de acuerdo con el compromiso de calidad y resistencia de ASRock.



Ya que las especificaciones de la placa base y el software del BIOS podrán ser actualizados, el contenido que aparece en esta documentación estará sujeto a modificaciones sin previo aviso. Si esta documentación sufre alguna modificación, la versión actualizada estará disponible en el sitio web de ASRock sin previo aviso. Si necesita asistencia técnica relacionada con esta placa base, visite nuestro sitio web para obtener información específica sobre el modelo que esté utilizando. Podrá encontrar las últimas tarjetas VGA, así como la lista de compatibilidad de la CPU, en el sitio web de ASRock. Sitio web de ASRock <http://www.asrock.com>.

1.1 Contenido del paquete

- Placa base ASRock FatalIty X99M Killer Series (Factor de forma Micro ATX)
- Guía de instalación rápida de ASRock FatalIty X99M Killer Series
- CD de soporte de ASRock FatalIty X99M Killer Series
- 1 escudo panel I/O
- 1 tarjeta ASRock SLI_Bridge
- 2 cables de datos Serie ATA (SATA) (Opcional)
- 1 cable HDD de ahorro de energía
- 1 tornillos para socket Ultra M.2

1.2 Especificaciones

- Plataforma**
- Factor de forma Micro ATX
 - PCB de fibra de vidrio de alta densidad

- CPU**
- Admite la familia de procesadores Intel® Core™ i7 y Xeon® 18-Core para el zócalo LGA 2011-3
 - Diseño Digi Power
 - Diseño de 12 fases de alimentación
 - Compatible con la tecnología de Intel® Turbo Boost 2.0
 - Admite tecnología de aumento de velocidad liberada

- Conjunto de chips**
- Intel® X99

- Memoria**
- Tecnología de memoria DDR4 en cuatro canales
 - 4 ranuras DDR4 DIMM
 - Compatible con memoria no-ECC, sin búfer DDR4 3000+(OC)/2933+(OC)/2800(OC)/2400(OC)/2133/1866/1600/1333/1066
- * Para obtener más información, consulte la lista de memorias compatibles en el sitio web de ASRock. (<http://www.asrock.com/>)
- Admite RDIMM no ECC (DIMM registrado)
 - Admite ECC DDR4, memoria sin búfer/RDIMM con procesadores Intel® Xeon® de la serie E5 en el zócalo LGA 2011-3
 - Capacidad máxima de la memoria del sistema: 64GB (consulte la ADVERTENCIA)
 - Compatible con Extreme Memory Profile (XMP)2.0 de Intel®
 - Contacto 15µ Gold en ranuras DIMM

- Ranura de expansión**
- 2 ranuras PCI Express 3.0 x16 (PCIE1 en modo x16, PCIE2 en modo x16)
- * Si instala una CPU con 28 líneas, PCIE1/PCIE2 funcionarán a x16/x8.
- 1 ranura PCI Express 2.0 x16 (PCIE3: modo x4)
 - Compatible con AMD Quad CrossFireX™ y CrossFireX™
 - Compatible con NVIDIA® Quad SLI™ y SLI™
 - Contacto 15µGold en ranura VGA PCIe (PCIE1 y PCIE2)

Audio

- 7.1 Audio CH HD con Protección de contenido (Realtek ALC1150 Audio Codec)
- Compatible con audio Blu-ray Premium
- Compatible con protección por sobretensión (protección ASRock Full Spike)
- Compatible con Purity Sound™ 2
 - Tapas de audio Nichion de la serie Fine Gold
 - 115dB SNR DAC con amplificador diferencial
 - Amplificador de auriculares de alta calidad TI® NE5532 (admite auriculares de hasta 600 ohmios)
 - Tecnología Direct Drive
 - Cubierta de aislamiento de EMI (interferencias electromagnéticas)
 - Protección de aislamiento PCB (circuito impreso)
- Compatible con DTS Connect

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200 Series (PCIE x1 Gigabit LAN 10/100/1000 Mb/s)
- Compatible con la Tecnología de seguridad en internet Wake On Qualcomm® Atheros® (en Qualcomm® Atheros® Killer™ E2200 Series)
- Compatible con Wake-On-LAN
- Compatible con protección contra rayos y electricidad electrostática (protección ASRock Full Spike)
- Compatible con Ethernet de consumo eficiente de energía 802.3az
- Compatible con PXE

Panel trasero I/O

- 1 puerto de ratón/teclado PS/2
- 1 puerto de salida SPDIF óptica
- 1 conector eSATA
- 3 puertos USB 2.0 (compatible con protección contra electricidad estática (protección ASRock Full Spike))
- 1 puerto de ratón Fatal1ty (USB 2.0) (compatible con protección contra electricidad estática (protección ASRock Full Spike))
- 4 puertos USB 3.0 (compatible con protección contra electricidad estática (protección ASRock Full Spike))
- 2 puertos LAN RJ-45 con LED (ACT/LINK LED y SPEED LED)
- 1 interruptor de borrado CMOS
- Conector de audio HD: Altavoz trasero / Central / Graves / Entrada de línea / Altavoz frontal / Micrófono

Almacenamiento

- 10 conectores SATA3 de 6,0 Gb/s, compatibilidad con RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage Technology 13), NCQ, AHCI y conexión en caliente y tecnología de ahorro ASRock HDD (el conector S_SATA3_3 se comparte con el puerto eSATA) (el conector S_SATA3_2 se comparte con el puerto Ultra M.2 Socket)

* RAID solamente se admite en los puertos SATA3_0 ~ SATA3_5.

- 1 conector eSATA que admite las funcionalidades NCQ, AHCI y Conexión en caliente
- 1 zócalo Ultra M.2, que admite el módulo SATA3 6,0 Gb/s M.2 y el módulo PCI Express M.2 hasta Gen3 x4 (32 Gb/s)

Conectores

- 1 Cabezal de puerto COM
- 1 cabezal TPM
- 1 Cabezal de indicador LED de alimentación
- 2 Conectores de ventilador de la CPU (1 de 4 pines y 1 de 3 pines)
- 2 Conectores de ventilador del chasis (1 de 4 pines y 1 de 3 pines) (Control de velocidad de ventilador inteligente)
- 1 Conector de ventilador de alimentación (de 3 pines)
- 1 Conector de alimentación ATX de 24 pines
- 1 Conector de alimentación de 8 pines y 12V (conector de alimentación de alta densidad)
- 1 conector HDD de ahorro de energía
- 1 conector de alimentación PCIe
- 1 Conector de audio del panel frontal
- 1 conector Thunderbolt AIC
- 2 cabezales USB 2.0 (compatible con 4 puertos USB 2.0) (compatible con protección contra electricidad estática (protección ASRock Full Spike))
- 1 cabezales USB 3.0 (compatible con 2 puertos USB 3.0) (compatible con protección contra electricidad estática (protección ASRock Full Spike))
- 1 Dr. Debug con indicador LED
- 1 interruptor de alimentación con indicador LED
- 1 interruptor de reseteo con indicador LED
- 1 interruptor de selección de BIOS

Función del BIOS

- 2 BIOS Legal UEFI AMI de 128Mb compatibles con interfaz gráfica de usuario multilingüe (1 BIOS Principal y 1 BIOS de copia de seguridad)
- Compatible con tecnología UEFI de copia de seguridad segura
- Eventos de reactivación conformes con ACPI 1.1
- Compatible con SMBIOS 2.3.1

- Multiajuste de voltaje de CPU, DRAM, PCH 1,05V, PCH 1,5V, VPPM

Monitor del hardware

- Método de sensor de temperatura de la CPU/Chasis
- Tacómetro del ventilador de alimentación/CPU/Chasis
- CPU/Chasis Ventilador silencioso (Ajuste automático de velocidad del ventilador del chasis por temperatura de la CPU)
- Control multivelocidad del ventilador de la CPU/Chasis
- Control de voltaje: Voltaje de entrada de la CPU, voltaje interno de la CPU, +12V, +5V, +3,3V

SO

- Microsoft® Windows® 10 64 bits / 8.1 32 bits / 8.1 64 bits / 8 32 bits / 8 64 bits / 7 32 bits / 7 64 bits

Certificaciones

- FCC, CE, WHQL
- Compatible con ErP/EuP (requiere toma de alimentación compatible con ErP/EuP)

* Para obtener más información acerca del producto, visite nuestro sitio web: <http://www.asrock.com>



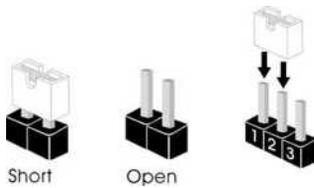
Tenga en cuenta que existen ciertos riesgos relacionados con el overlocking (sobreceleración), incluyendo el ajuste de la configuración del BIOS, aplicando la Tecnología overlocking no vinculada o utilizando las herramientas de overlocking de tercera parte. El overlocking podría afectar la estabilidad de su sistema o incluso dañar los componentes y dispositivos de su sistema. Si lo realiza, todos los riesgos y gastos derivados del overlocking serán de su entera responsabilidad. No nos hacemos responsables de posibles daños producidos por el overlocking.



Debido a las limitaciones, el tamaño real de la memoria podrá ser inferior a 4GB para reservar espacio para el uso del sistema en sistemas operativos Windows® de 32 bits. Los sistemas operativos Windows® de 64 bits no tienen estas limitaciones. Podrá utilizar XFast RAM de ASRock para usar la memoria que Windows® no puede utilizar.

1.3 Instalación de los puentes

La instalación muestra cómo deben instalarse los puentes. Cuando la tapa de puente se coloca en los pines, el puente queda “Corto”. Si no coloca la tapa de puente en los pines, el puente queda “Abierto”. La ilustración muestra un puente de 3 pines cuyo pin 1 y pin 2 son “Cortos” cuando se coloca una tapa de puente en estos 2 pines.



Puente de borrado de
CMOS
(CLRCMOS1)
(consulte la pág.1, N.º 20)



CLRCMOS1 le permite borrar los datos del CMOS. Para borrar y restablecer los parámetros del sistema a los valores predeterminados de instalación, apague el ordenador y desenchufe el cable de alimentación de la toma de alimentación. Después de esperar 15 segundos, utilice un tapa de puente para acortar el pin2 y el pin3 en el CLRCMOS1 durante 5 segundos. Sin embargo, no borre el CMOS justo después de que haya actualizado el BIOS. Si necesita borrar el CMOS cuando acabe de actualizar el BIOS, deberá arrancar el sistema primero y, a continuación, deberá apagarlo antes de que realice el borrado del CMOS. Tenga en cuenta que la contraseña, la fecha, la hora y el perfil de usuario predeterminado serán eliminados únicamente si se retira la pila del CMOS.



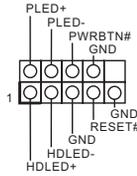
El interruptor de borrado CMOS tiene la misma función que el puente de borrado de CMOS.

1.4 Conectores y cabezales incorporados



Los cabezales y conectores incorporados NO son puentes. NO coloque tapas de puente sobre estos cabezales y conectores. Si coloca tapas de puente sobre los cabezales y conectores dañará de forma permanente la placa base.

Cabezal del panel del sistema
(PANEL1 de 9 pines)
(consulte la pág.1, N.º 17)



Conecte el interruptor de alimentación, restablezca el interruptor y el indicador del estado del sistema del chasis a los valores de este cabezal, según los valores asignados a los pines como se indica a continuación. Cerciérese de cuáles son los pines positivos y los negativos antes de conectar los cables.



PWRBTN (Interruptor de alimentación):

Conéctelo al interruptor de alimentación del panel frontal del chasis. Deberá configurar la forma en la que su sistema se apagará mediante el interruptor de alimentación.

RESET (Interruptor de reseteo):

Conéctelo al interruptor de reseteo del panel frontal del chasis. Pulse el interruptor de reseteo para resetear el ordenador si éste está bloqueado y no se puede reiniciar de forma normal.

PLED (Indicador LED de la alimentación del sistema):

Conéctelo al indicador de estado de la alimentación del panel frontal del chasis. El indicador LED permanece encendido cuando el sistema está funcionando. El indicador LED parpadea cuando el sistema se encuentra en estado de suspensión S1/S3. El indicador LED se apaga cuando el sistema se encuentra en estado de suspensión S4 o está apagado (S5).

HDLED (Indicador LED de actividad en el disco duro):

Conéctelo al indicador LED de actividad en el disco duro del panel frontal del chasis. El indicador LED permanece encendido cuando el disco duro está leyendo o escribiendo datos.

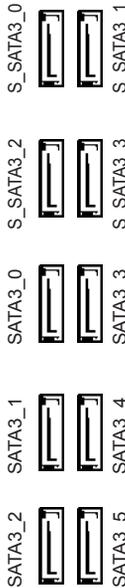
El diseño del panel frontal puede ser diferente dependiendo del chasis. Un módulo de panel frontal consta principalmente de: interruptor de alimentación, interruptor de reseteo, indicador LED de alimentación, indicador LED de actividad en el disco duro, altavoz, etc. Cuando conecte su módulo del panel frontal del chasis a este cabezal, asegúrese de que las asignaciones de los cables y los pines coinciden correctamente.

Cabezal de indicador LED de alimentación (PLED1 de 3 pines) (consulte la pág.1, N.º 16)



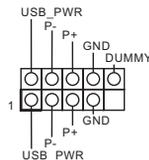
Conecte el indicador LED de alimentación del chasis a este cabezal para indicar el estado de alimentación del sistema.

Conectores Serie ATA3 (S_SATA3_0_1: consulte la pág.1, N.º 10) (S_SATA3_2_3: (consulte la pág. 1, N.º 12) (SATA3_0_3: consulte la pág.1, N.º 13) (SATA3_1_4: consulte la pág. 1, N.º 14) (SATA3_2_5: consulte la pág. 1, N.º 15)



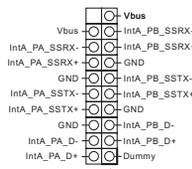
Estos diez conectores SATA3 son compatibles con cables de datos SATA para dispositivos de almacenamiento interno con una velocidad de transferencia de datos de hasta 6,0 Gb/s. Si se ha conectado el puerto eSATA en el panel trasero I/O, no funcionará el puerto interno S_SATA3_3. Si se ha ocupado el módulo Ultra M.2, el S_SATA3_2 interno no funcionará. * RAID solamente se admite en los puertos SATA3_0 ~ SATA3_5.

Cabezales USB 2.0 (USB5_6 de 9 pines) (consulte la pág.1, N.º 24) (USB7_8 de 9 pines) (consulte la pág.1, N.º 23)



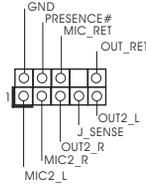
Además de cuatro puertos USB 2.0 en el panel I/O, esta placa base contiene dos cabezales. Cada cabezal USB 2.0 admite dos puertos.

Cabezales USB 3.0 (USB3_5_6 de 19 pines) (consulte la pág.1, N.º 8)



Además de cuatro puertos USB 3.0 en el panel I/O, esta placa base contiene un cabezal. Cada cabezal USB 3.0 admite dos puertos.

Cabezal de audio del panel frontal (HD_AUDIO1 de 9 pines) (consulte la pág.1, N.º 28)

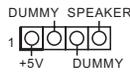


Este cabezal se utiliza para conectar dispositivos de audio al panel de audio frontal.



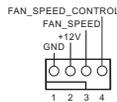
1. El Audio de Alta Definición (HDA, en inglés) es compatible con el método de sensor de conectores, sin embargo, el cable del panel del chasis deberá ser compatible con HDA para que pueda funcionar correctamente. Siga las instrucciones que se indican en nuestro manual y en el manual del chasis para instalar su sistema.
2. Si utiliza un panel de audio AC'97, colóquelo en el cabezal de audio del panel frontal siguiendo los pasos que se describen a continuación:
 - A. Conecte Mic_IN (MIC) a MIC2_L.
 - B. Conecte Audio_R (RIN) a OUT2_R y Audio_L (LIN) a OUT2_L.
 - C. Conexión a tierra (GND) a Ground (GND).
 - D. MIC_RET y OUT_RET se utilizan únicamente con el panel de audio HD. No es necesario que los conecte en el panel de audio AC'97.
 - E. Para activar el micrófono frontal, vaya a la ficha "micrófono frontal" en el panel de control de Realtek y ajuste el "Volumen de grabación".

Cabezal de altavoces del chasis (SPEAKER1 de 4 pines) (consulte la pág.1, N.º 21)



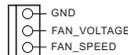
Conecte el altavoz del chasis a este cabezal.

Conectores del ventilador de alimentación y del chasis (CHA_FAN1 de 4 pines) (consulte la pág.1, N.º 22)

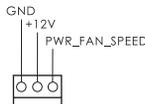


Conecte los cables del ventilador a los conectores del ventilador y haga coincidir el cable negro con el pin de conexión a tierra. La velocidad del ventilador CHA_FAN se puede controlar mediante UEFI o A-Tuning.

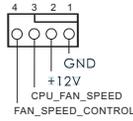
(CHA_FAN2 de 3 pines) (consulte la pág.1, N.º 9)



(PWR_FAN1 de 3 pines) (consulte la pág.1, N.º 30)

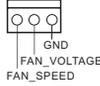


Conectores del ventilador de la CPU
(CPU_FAN1 de 4 pines)
(consulte la pág.1, N.º 4)

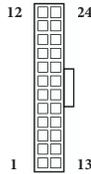


Esta placa base contiene un conector de ventilador (ventilador silencioso) de CPU de 4 pines. Si tiene pensando conectar un ventilador de CPU de 3 pines, conéctelo al Pin 1-3.

(CPU_FAN2 de 3 pines)
(consulte la pág.1, N.º 5)

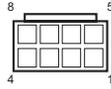


Conector de alimentación ATX
(ATXPWR1 de 24 pines)
(consulte la pág.1, N.º 7)



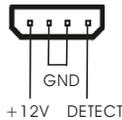
Esta placa base contiene un conector de alimentación ATX de 24 pines. Para utilizar una toma de alimentación ATX de 20 pines, conéctela en los Pines del 1 al 13.

Conector de alimentación ATX de 12V
(ATX12V1 de 8 pines)
(consulte la pág.1, N.º 2)



Esta placa base contiene un conector de alimentación ATX de 12V y 8 pines. Para utilizar una toma de alimentación ATX de 4 pines, conéctela en los Pines del 1 al 5.

Conector de alimentación PCIe
(PCIE_PWR1 de 4 pines)
(consulte la pág.1, N.º 27)



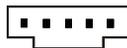
Conecte a este conector un cable de alimentación molex de 4 pines cuando se instalen más de tres tarjetas gráficas.

Conector de ahorro de energía HDD
(SATA_PWR_1 de 4 pines)
(consulte la pág.1, N.º 11)



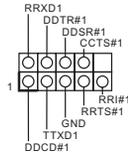
Conecte el cable de ahorro HDD a este conector para gestionar el estado de la potencia de HDD.

Conector Thunderbolt AIC
(TBT1 de 5 pines)
(consulte la pág.1, N.º 26)



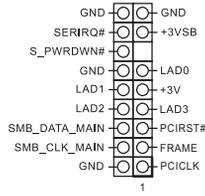
Conecte un cable de señal de 5 pines (cables GPIO) a este conector cuando instales una tarjeta adicional (AIC) Thunderbolt™.

Cabezal de puerto serie
(COM1 de 9 pines)
(consulte la pág.1, N.º 25)



Este cabezal admite un
módulo de puerto serie.

Cabezal TPM
(TPMS1 de 17 pines)
(consulte la pág.1, N.º 6)



Este conector es compatible con el sistema Módulo de Plataforma Segura (TPM, en inglés), que puede almacenar de forma segura claves, certificados digitales, contraseñas y datos. Un sistema TPM también ayuda a aumentar la seguridad en la red, protege las identidades digitales y garantiza la integridad de la plataforma.

1.5 Interruptores inteligentes

La placa base contiene cuatro interruptores inteligentes: Interruptor de alimentación, interruptor de reseteo, interruptor de borrado de CMOS y un interruptor de selección BIOS, que permiten a los usuarios encender y apagar rápidamente el sistema, resetearlo, borrar los valores de CMOS, o arrancar desde un BIOS diferente.

Interruptor de alimentación (PWRBTN)
(consulte la pág.1, N.º 18)



El interruptor de alimentación permite a los usuarios encender y apagar rápidamente el sistema.

Interruptor de reseteo (RSTBTN)
(consulte la pág.1, N.º 19)



El interruptor de reseteo permite a los usuarios resetear rápidamente el sistema.

Interruptor de borrado de CMOS (CLRBTN)
(consulte la pág. 3, N.º 15)



El interruptor de borrado de CMOS permite a los usuarios borrar rápidamente los valores de CMOS.



Esta función podrá utilizarla únicamente cuando apague su ordenador y desconecte la corriente.

Interruptor de selección del BIOS (BIOS_SEL1)
(consulte la página 1, nº 29)



El interruptor de selección del BIOS permite arrancar el sistema desde el BIOS A o el BIOS B.



Esta placa base contiene dos chips de BIOS, un BIOS principal (BIOS_A) y un BIOS de copia de seguridad (BIOS_B), que aumentan la seguridad y la estabilidad de su sistema. Normalmente, el sistema funcionará con el BIOS principal. Sin embargo, si el BIOS principal está dañado de alguna forma, deberá simplemente cambiar el interruptor de selección del BIOS a la posición "B". De esta forma, el sistema arrancará desde el BIOS de copia de seguridad la próxima vez que lo inicie. Después, utilice "Copia de seguridad segura de UEFI" en "Herramienta de configuración de UEFI" para duplicar una copia de trabajo de los archivos del BIOS en el BIOS principal con el objetivo de garantizar que el sistema funcione correctamente. Por cuestiones de seguridad, los usuarios no pueden actualizar el BIOS de copia de seguridad manualmente. Los usuarios deberán consultar los indicadores LED del BIOS (BIOS_A_LED o BIOS_B_LED) para identificar qué BIOS está activado en ese momento.

1 Введение

Благодарим вас за приобретение надежной системной платы ASRock Fatal1ty X99M Killer Series , выпускаемой под постоянным жестким контролем качества компании ASRock. Эта материнская плата обеспечивает великолепную производительность и характеризуется прочной конструкцией в соответствии с требованиями компании ASRock в отношении качества и долговечности.



По причине обновления спецификации на материнскую платформу и программного обеспечения BIOS содержимое настоящей документации может быть изменено без предварительного уведомления. При изменении содержимого настоящего документа его обновленная версия будет доступна на веб-сайте ASRock без предварительного уведомления. При необходимости технической поддержки, связанной с материнской платой, посетите веб-сайт и найдите на нем информацию о модели используемой вами материнской платы. На веб-сайте ASRock также можно найти самый последний перечень поддерживаемых VGA-карт и ЦП. Веб-сайт ASRock <http://www.asrock.com>.

1.1 Комплект поставки

- Системная плата ASRock Fatal1ty X99M Killer Series (форм-фактор Micro ATX)
- Краткое руководство по установке ASRock Fatal1ty X99M Killer Series
- Компакт-диск с ПО для платы ASRock Fatal1ty X99M Killer Series
- 1 x экран панели с портами ввода-вывода
- 1 x карты ASRock SLI_Bridge
- 2 x кабеля передачи данных Serial ATA (SATA) (приобретаются отдельно)
- 1 x Кабель HDD Saver
- 1 x Винт для гнезда Ultra M.2

1.2 Спецификация

Платформа

- Форм-фактор Micro ATX
- Печатная плата высокой плотности на основе стеклоткани

ЦП

- Поддержка семейства процессоров Intel® Core™ i7 и 18-ядерный Xeon® для разъема LGA 2011-3
- Digi Power design
- Система питания 12
- Поддержка технологии Intel® Turbo Boost 2.0
- Поддержка технологии Untied Overclocking

Чипсет

- Intel® X99

Память

- Поддержка технологии Quad Channel DDR4 Memory Technology
- 4 гнезда DDR4 DIMM
- Поддержка модулей памяти DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/ 2133/1866/ 1600/1333/1066 Non-ECC Unbuffered
- * Дополнительная информация представлена в Списке совместимой памяти (Memory Support List) на веб-сайте ASRock. (<http://www.asrock.com/>)
- Поддержка RDIMM без ECC (Регистровая память DIMM)
- Поддержка DDR4 ECC, небуферизованной памяти/ RDIMM с процессорами Intel® Xeon® серии E5 в LGA 2011-3 Socket
- Максимальный объем системной памяти: 64 Гб (см. «ПРЕДОСТЕРЕЖЕНИЕ»)
- Поддержка Intel® Extreme Memory Profile (XMP)2.0
- Гнезда DIMM с золочеными контактами 15мк

Слот расширения

- 2 x PCI Express 3.0 x16 гнезд (PCIЕ1 в режиме x16; PCIЕ2 в режиме x16)
- * При установке центрального процессора, имеющего 28 линий, используются слоты PCIЕ1/PCIЕ2 в режимах x16/x8.
- 1 x Слот PCI Express 2.0 x16 (PCIЕ3: режим x4)
- Поддержка AMD Quad CrossFireX™ и CrossFireX™
- Поддержка NVIDIA® Quad SLI™ и SLI™
- 15μ Золоченые контакты разъема VGA PCIe (PCIЕ1 и PCIЕ2)

Аудио

- 7.1-канальный звук высокой четкости HD Audio с защитой данных (аудиокодек Realtek ALC1150)
- Поддержка Premium Blu-ray Audio
- Защита от перенапряжения (ASRock Full Spike Protection)
- Поддержка Purity Sound™ 2
 - Конденсаторы для аудиосистем серии Nichicon Fine Gold
 - 115 дБ SNR DAC с дифференциальным усилителем
 - Усилитель TI® NE5532 Premium Headset Amplifier (поддержка гарнитуры с сопротивлением до 600 Ом)
 - Технология Direct Drive
 - Крышка с экранированием от электромагнитных помех
 - Изолирующее экранирование печатной платы
- Поддержка DTS-подключения

ЛВС

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Мб/с)
- 1 x Qualcomm® Atheros® Killer™ E2200 Series (PCIЕ x1 Gigabit LAN 10/100/1000 Мб/с)
- Поддержка технологии Qualcomm® Atheros® Security Wake On Internet Technology (с Qualcomm® Atheros® Killer™ E2200 Series)
- Поддержка Wake-On-LAN
- Молниезащита и защита электростатического напряжения (ASRock Full Spike Protection)
- Поддержка Energy Efficient Ethernet 802.3az
- Поддержка PXE

Порты ввода-вывода на задней панели

- 1 x PS/2 для мыши/клавиатуры
- 1 x оптический выходной SPDIF
- 1 x eSATA
- 3 x Порты USB 2.0 с защитой от электростатического напряжения (ASRock Full Spike Protection)
- 1 x Порт для мыши Fatal1ty (USB 2.0) с защитой от электростатического напряжения (ASRock Full Spike Protection)
- 4 x Порты USB 3.0 с защитой от электростатического напряжения (ASRock Full Spike Protection)
- 2 x RJ-45 для ЛВС с СИД (СИД АСТ/LINK и СИД SPEED)
- 1 x переключатель сброса настроек CMOS
- Разъемы HD Audio: задние динамики / центральный динамик / сабвуфер / линейный вход / передние динамики / микрофон

Запоминающие устройства

- 10 x Разъемы SATA3 со скоростью обмена данными 6,0 ГБ/с, технологии RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage Technology 13), NCQ, AHCI, "горячего" подключения и ASRock HDD Saver (разъем S_SATA3_3 используется с портом eSATA) (разъем S_SATA3_2 используется с портом Ultra M.2 Socket)
- * Поддержка RAID только на портах SATA3_0 ~ SATA3_5.
- 1 x разъем eSATA, поддержка функций NCQ, AHCI и «горячей» замены
- 1 x Ultra M.2 Socket, поддержка модуля M.2 SATA3 6,0 ГБ/с и модуля M.2 PCI Express до версии Gen3 x4 (32 ГБ/с)

Разъемы

- 1 x колодка COM-порта
- 1 x Колодка TPM
- 1 x колодка светодиодного индикатора питания
- 2 x разъема для вентилятора ЦП (1 x 4-контактный, 1 x 3-контактный)
- 2 x разъема для вентилятора корпуса (1 x 4-контактный, 1 x 3-контактный) ("Умный" регулятор скорости вентилятора)
- 1 x разъем для вентилятора блока питания (3-контактный)
- 1 x разъем питания ATX (24-контактный)
- 1 x 8-контактный разъем питания 12 В (разъем питания высокой плотности)
- 1 x Разъем HDD Saver
- 1 x Разъем питания PCIe
- 1 x аудиоразъем на передней панели
- 1 x AIC-разъем Thunderbolt
- 2 x Колодки USB 2.0 (до 4 портов USB 2.0) с защитой от электростатического напряжения (ASRock Full Spike Protection)
- 1 x Колодки USB 3.0 (до 2 портов USB 3.0) с защитой от электростатического напряжения (ASRock Full Spike Protection)
- 1 x Dr. Debug с СИД
- 1 x кнопка питания с СИД
- 1 x кнопка перезагрузки с СИД
- 1 x селекторный переключатель BIOS

Параметры BIOS

- 2 x 128 Мб AMI UEFI Legal BIOS с поддержкой многоязычного ГИП (1 x основной BIOS и 1 x BIOS резервного копирования)
- Поддержка технологии безопасного резервного копирования UEFI
- Совместимость с функцией энергопотребления в стандарте ACPI 1.1
- Поддержка SMBIOS 2.3.1
- Регулировка напряжений ЦП, DRAM, PCH 1,05 В, PCH 1,5 В, VPPM

**Контроль
оборудования**

- Датчик температуры процессора/корпуса
- Тахометр вентиляторов ЦП/корпуса/блока питания
- Бесшумный вентилятор охлаждения процессора/корпуса (с автоматической регулировкой скорости вращения в зависимости от температуры нагрева процессора)
- Управление скоростью вращения вентилятора охлаждения процессора/корпуса
- Контроль напряжения: +12V, +5V, +3,3V, входное напряжение процессора, внутренние напряжения процессора

ОС

- Microsoft® Windows® 10 64-bit / 8.1 32-bit / 8.1 64-bit / 8 32-bit / 8 64-bit / 7 32-bit / 7 64-bit

Сертификация

- FCC, CE, WHQL
- Совместимость с E9P/EuP (необходим блок питания, соответствующий стандарту E9P/EuP)

* Для получения дополнительной информации об изделии посетите наш веб-сайт:
<http://www.asrock.com>



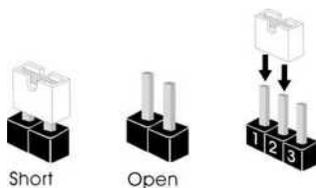
Следует учитывать, что разгон процессора, включая изменение настроек BIOS, применение технологии Untied Overclocking Technology и использование инструментов разгона независимых производителей, сопряжен с определенным риском. Разгон процессора может повлиять на стабильность системы или даже привести к повреждению ее компонентов и устройств. Вы выполняете разгон процессора на ваш собственный риск и за свой счет. Мы не несем ответственность за возможный ущерб, вызванный разгоном процессора.



В связи с ограничением при работе под 32-разрядной ОС Windows® фактический объем памяти может быть меньше 4 Гбайт. Для 64-разрядных ОС Windows® таких ограничений нет. Для использования той памяти, которую ОС Windows® не может использовать, используйте ASRock XFast RAM.

1.3 Установка перемычек

Установка перемычек показана на рисунке. При установке колпачковой перемычки на контакты перемычка «замкнута». Если колпачковая перемычка на контакты не установлена, перемычка «разомкнута». На рисунке показана 3-контактная перемычка с замкнутыми контактами 1 и 2 при установке на них колпачковой перемычки.



Перемычка сброса
настроек CMOS
(CLRCMOS1)
(См. стр. 1, № 20)



CLRCMOS1 используется для удаления данных CMOS. Чтобы сбросить и обнулить параметры системы на настройки по умолчанию, выключите компьютер и извлеките отключите кабель питания от источника питания. Подождите 15 секунд и перемычкой замкните контакты 2 и 3 на CLRCMOS1 на 5 секунд. Не сбрасывайте настройки CMOS сразу после обновления BIOS. При необходимости сбросить настройки CMOS сразу после обновления BIOS сначала перезагрузите систему, а затем выключите компьютер перед сбросом настроек CMOS. Учтите, что пароль, дата, время и профиль пользователя по умолчанию сбрасываются только в том случае, если извлечь батарею CMOS.

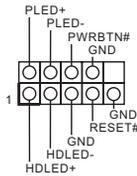


Предназначение переключателя сброса настроек CMOS аналогично предназначению перемычки сброса настроек CMOS.

1.4 Колодки и разъемы, расположенные на материнской плате

Расположенные на материнской плате колодки и разъемы перемычками НЕ являются. НЕ устанавливайте на эти колодки и разъемы колпачковые перемычки. Установка колпачковых перемычек на эти колодки и разъемы может вызвать неустраняемое повреждение материнской платы.

Колодка системной панели
(9-контактная, PANEL1)
(См. стр. 1, № 17)



Подключите расположенные на корпусе выключатель питания, кнопку перезагрузки и индикатор состояния системы к этой колодке в соответствии с распределением контактов, приведенным ниже. Перед подключением кабелей определите положительный и отрицательный контакты.

PWRBTN (кнопка питания):

Подключение кнопки питания, расположенной на передней панели корпуса. Можно настроить порядок выключения системы с использованием кнопки питания.

RESET (кнопка перезагрузки):

Подключение кнопки перезагрузки системы, расположенной на передней панели корпуса. Нажмите кнопку перезагрузки, чтобы перезапустить компьютер, если он завис и нормальный запуск невозможен.

PLED (светодиодный индикатор питания системы):

Подключение индикатора состояния, расположенного на передней панели корпуса. Светодиодный индикатор горит, когда система работает. Когда система находится в режиме ожидания S1/S3, светодиод мигает. Когда система находится в режиме ожидания S4 или выключена (S5), светодиод не горит.

HDLED (светодиодный индикатор работы жесткого диска):

Подключение светодиодного индикатора работы жесткого диска, расположенного на передней панели. Светодиодный индикатор горит, когда жесткий диск выполняет считывание или запись данных.

Передняя панель может быть разной на разных корпусах. В основном передняя панель включает в себя кнопку питания, кнопку перезагрузки, светодиодный индикатор питания, светодиодный индикатор работы жесткого диска, динамик и т. д. При подключении передней панели к этой колодке правильно подключайте провода к контактам.



Колодка светодиодного индикатора питания (3-контактная, PLED1) (См. стр. 1, № 16)



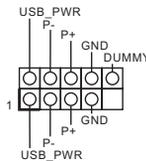
Подключите светодиодный индикатор питания корпуса к этой колодке, чтобы обеспечить индикацию состояния питания системы.

Разъемы Serial ATA3 (S_SATA3_0_1: См. стр. 1, № 10) (S_SATA3_2_3: см. стр. 1, № 12) (SATA3_0_3: См. стр. 1, № 13) (SATA3_1_4: см. стр. 1, № 14) (SATA3_2_5: см. стр. 1, № 15)



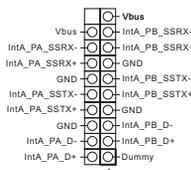
Эти десять разъемов SATA3 предназначены для подключения кабелей SATA внутренних запоминающих устройств для передачи данных со скоростью до 6,0 Гб/с. Если на задней панели ввода-вывода подключен порт eSATA, внутренний S_SATA3_3 не работает. Если разъем Ultra M.2 Socket занят, внутренний S_SATA3_2 не работает.
* Поддержка RAID только на портах SATA3_0 ~ SATA3_5.

Колодки USB 2.0 (9-контактная, USB5_6) (См. стр. 1, № 24) (9-контактная, USB7_8) (См. стр. 1, № 23)



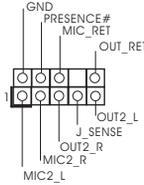
Кроме четырех портов USB 2.0 на панели ввода-вывода на материнской плате также есть две колодки. Каждая колодка USB 2.0 может поддерживать два порта.

Колодки USB 3.0 (19-контактная, USB3_5_6) (См. стр. 1, № 8)



Кроме четырех портов USB 3.0 на панели ввода-вывода на материнской плате также есть одна колодка. Каждая колодка USB 3.0 может поддерживать два порта.

Аудиоколодка передней панели
(9-контактная, HD_AUDIO1)
(См. стр. 1, № 28)

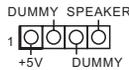


Эта колодка предназначена для подключения аудиоустройств к передней аудиопанели.



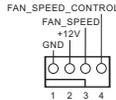
1. Аудиосистема высокого разрешения поддерживает функцию распознавания разъема, но для ее правильной работы необходимо, чтобы провод панели корпуса поддерживал передачу сигналов HDA. Инструкции по установке системы см. в этом руководстве и руководстве на корпус.
2. При использовании аудиопанели AC'97 подключите ее к аудиоколодке передней панели, как указано далее:
 - A. Подключите Mic_IN (MIC) к MIC2_L.
 - B. Подключите Audio_R (RIN) к OUT2_R, Audio_L (LIN) к OUT2_L.
 - C. Подключите провод заземления (GND) к контакту заземления (GND).
 - D. Контакты MIC_RET и OUT_RET используются только для аудиопанели высокого разрешения. При использовании аудиопанели AC'97 их подключать не нужно.
 - E. Чтобы активировать передний микрофон, перейдите на вкладку FrontMic панели управления Realtek и отрегулируйте параметр Громкость записи.

Колодка динамика корпуса
(4-контактная, SPEAKER1)
(См. стр. 1, № 21)



Предназначена для подключения динамика корпуса.

Разъемы для вентиляторов корпуса и блока питания
(4-контактный, CHA_FAN1)
(См. стр. 1, № 22)

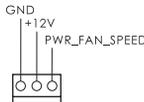


Предназначены для подключения кабелей разъемов вентиляторов и подключения черного провода к заземлению. Управление скоростью вентиляторов CHA_FAN может осуществляться посредством UEFI или A-Tuning.

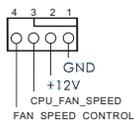
(3-контактный, CHA_FAN2)
(См. стр. 1, № 9)



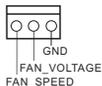
(3-контактный, PWR_FAN1)
(См. стр. 1, № 30)



Разъемы вентиляторов ЦП
(4-контактный, CPU_FAN1)
(См. стр. 1, № 4)

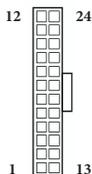


(3-контактный, CPU_FAN2)
(См. стр. 1, № 5)



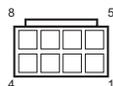
Эта материнская плата снабжена 4-контактным разъемом для малошумящего вентилятора ЦП. Если вы собираетесь подключить 3-контактный вентилятор охлаждения процессора, подключайте его к контактам 1-3.

Разъем питания ATX
(24-контактный, ATXPWR1)
(См. стр. 1, № 7)



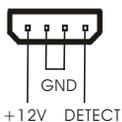
Эта материнская плата снабжена 24-контактным разъемом питания ATX. Чтобы использовать 20-контактный разъем питания ATX, подключите его вдоль контакта 1 и контакта 13.

Разъем питания ATX 12 В
(8-контактный, ATX12V1)
(См. стр. 1, № 2)



Эта материнская плата снабжена 8-контактным разъемом питания ATX 12 В. Чтобы использовать 4-контактный разъем питания ATX, подключите его вдоль контакта 1 и контакта 5.

Разъем питания PCIe
(4-контактный PCIe_PWR1)
(См. стр. 1, № 27)



При установке более трех графических карт подключите к данному разьему 4-контактный кабель Molex.

Разъем HDD Saver
(4-контактный SATA_PWR_1)
(См. стр. 1, № 11)



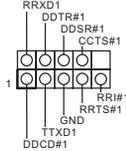
Для управления режимом питания жесткого диска подключите к данному разьему кабель HDD Saver.

Разъем Thunderbolt AIC
(5-контактный TBT1)
(См. стр. 1, № 26)



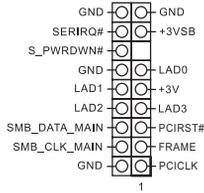
При установке расширительной платы (AIC-карты) Thunderbolt™ подключите к данному разъему 5-контактный сигнальный кабель (кабель интерфейса GPIO).

Колодка последовательного порта
(9-контактная, COM1)
(См. стр. 1, № 25)



Колодка поддерживает подключение модуля последовательного порта.

Колодка TPM
(17-контактная, TPMS1)
(См. стр. 1, № 6)



Этот разъем обеспечивает поддержку системы Trusted Platform Module (TPM), которая способна обеспечить надежное хранение ключей, цифровых сертификатов, паролей и данных. Система TPM также повышает уровень сетевой безопасности, защищает цифровые идентификаторы и обеспечивает целостность платформы.

1.5 Электронные кнопки

На системной плате размещены четыре электронных переключателя: выключатель питания, кнопка сброса, кнопка очистки КМОП и селекторный переключатель BIOS, позволяющие быстро выключать/выключать систему, сбрасывать систему, очищать параметры КМОП или загружаться с другой BIOS.

Кнопка питания
(PWRBTN)
(См. стр. 1, № 18)



Кнопка питания предназначена для быстрого включения/выключения системы.

Кнопка перезагрузки
(RSTBTN)
(См. стр. 1, № 19)



Кнопка перезагрузки предназначена для быстрой перезагрузки системы.

Кнопка сброса настроек CMOS
(CLRBTN)
(См. стр. 3, № 15)



Кнопка сброса настроек CMOS предназначена для быстрого обнуления значений CMOS.



Эта функция работает только, если питания компьютера выключено и он отключен от сети питания.

Селекторный переключатель BIOS
(BIOS_SEL1)
(См. стр. 1, № 29)



Селекторный переключатель BIOS предназначен для запуска системы с использованием BIOS A или BIOS B.



Эта материнская плата снабжена двумя микросхемами BIOS — основной BIOS (BIOS_A) и BIOS резервного копирования (BIOS_B), — что повышает уровень защиты и стабильности системы. Обычно система использует основную BIOS. При повреждении или сбое основной BIOS просто установите селекторный переключатель BIOS в положение «B», и при следующем запуске системы будет использоваться резервная BIOS. После этого в утилите настройки UEFI используйте опцию Secure Backup UEFI, чтобы выполнить копирование рабочих файлов BIOS в основную BIOS для обеспечения нормальной работы системы. Для обеспечения безопасности ручное обновление резервной копии BIOS пользователем отключено. Определить, какая BIOS используется в настоящее время, можно по светодиодному индикаторам BIOS (BIOS_A_LED или BIOS_B_LED).

1 Introdução

Obrigado por adquirir a placa mãe ASRock Fatal1ty X99M Killer Series , uma confiável placa mãe ASRock produzida sob rigoroso controle de qualidade consistente. Esta placa principal oferece um excelente desempenho com um design robusto em conformidade com o compromisso da ASRock em fabricar produtos de qualidade e resistentes.



Como as especificações da placa-mãe e do software do BIOS podem ser atualizadas, o conteúdo desta documentação estará sujeito a alterações sem aviso prévio. Caso ocorram modificações a esta documentação, a versão atualizada estará disponível no site da ASRock sem aviso prévio. Se precisar de assistência técnica relacionada a esta placa principal, visite o nosso site para obter informações específicas sobre o modelo que estiver utilizando. Você também poderá encontrar a lista de placas VGA e CPU mais recentes suportadas no site da ASRock. Site da ASRock <http://www.asrock.com>.

1.1 Conteúdo da embalagem

- Placa Mãe ASRock Fatal1ty X99M Killer Series (Fator de Forma Micro ATX)
- Guia de Instalação Rápida da ASRock Fatal1ty X99M Killer Series
- CD de Suporte da ASRock Fatal1ty X99M Killer Series
- 1 x Painel de E/S
- 1 x Placa ASRock SLI_Bridge
- 2 x Cabos de dados Serial ATA (SATA) (Opcional)
- 1 X Cabo Protetor do HDD
- 1 x Parafusos para Soquetes Ultra M.2

1.2 Especificações

- Plataforma**
- Formato Micro ATX
 - Tecido de Vidro de Alta densidade PCB

- CPU**
- Suporta Família de Processadores Intel® Core™ i7 e Xeon® 18-Core para o Soquete LGA 2011-3
 - Design Digi Power
 - Design com 12 fases de alimentação
 - Suporta a tecnologia Intel® Turbo Boost 2.0
 - Suporta a tecnologia Untied Overclocking

- Chipset**
- Intel® X99

- Memória**
- Tecnologia de memória DDR4 de quatro canais
 - 4 x Slots DIMM DDR4
 - Suporta memória DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/ 2133/1866/1600/1333/1066, não ECC, sem memória intermediária

* Por favor, consulte a Lista de Suporte de Memória no site da ASRock para obter mais informação. (<http://www.asrock.com/>)

- Suporta RDIMM não ECC (DIMM registrada)
- Suporta DDR4 ECC, memória não armazenamento/RDIMM com processadores Intel® Xeon® série E5, no Soquete LGA 2011-3
- Capacidade máxima da memória do sistema: 64GB (ver CUIDADO)
- Suporta Extreme Memory Profile (XMP)2.0 da Intel®
- Contato em Ouro 15µ nos slots DIMM

- Slot de expansão**
- 2 x PCI Express 3.0 x16 Slots (PCIE1 @ modo x16 ; PCIE2 @ modo x16)

* Caso você instale a CPU com 28 faixas, PCIE1/PCIE2 será executado a x16/x8.

- 1 x Slot PCI Express 2.0 x16 (PCIE3: modo x4)
- Suporta AMD Quad CrossFireX™ e CrossFireX™
- Suporta NVIDIA® Quad SLI™ e SLI™
- Contato em Ouro 15µ no Slot PCIe VGA (PCIE1 e PCIE2)

Áudio

- Áudio HD de 7.1 canais com proteção de conteúdo (Codec de áudio Realtek ALC1150)
- Suporte áudio Blu-ray superior
- Suporta proteção contra sobretensão (Proteção Total Contra Picos ASRock)
- Suporta Purity Sound™ 2
 - Capacitor de Áudio Série Ouro Fino Nichicon
 - 115dB SNR DAC com amplificador diferencial
 - Amplificador de Fone de Ouvido TI®NE5532 Premium (suporta fones de ouvido de até 600 Ohms)
 - Tecnologia de drive direto
 - Cobertura de blindagem EMI
 - Blindagem de isolamento PCB
- Suporta a tecnologia DTS Connect

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200 Series (PCIE x1 Gigabit LAN 10/100/1000 Mb/s)
- Suporta a tecnologia Qualcomm® Atheros® Security Wake On Internet (no Qualcomm® Atheros® Killer™ E2200 Series)
- Suporta Wake-On-LAN
- Suporta Proteção contra Relâmpago/EDS (Proteção Total Contra Picos ASRock)
- Suporta Energy Efficient Ethernet 802.3az
- Suporta PXE

E/S do painel posterior

- 1 x Porta PS/2 para mouse/teclado
- 1 x Porta de saída SPDIF ótica
- 1 x Conector eSATA
- 3 x Portas USB 2.0 (Suporta Proteção ESD (Proteção Total Contra Picos ASRock))
- 1 x Porta para rato Fatal1ty (USB 2.0) (Suporta Proteção ESD (Proteção Total Contra Picos ASRock))
- 4 x Portas USB 3.0 (Suporta Proteção ESD (Proteção Total Contra Picos ASRock))
- 2 x Portas LAN RJ-45 com LED (LED ACT/LIGAÇÃO e LED DE VELOCIDADE)
- 1 x Interruptor para apagar o CMOS
- Fichas de áudio HD: Alto-falante posterior / Central / Graves / Entrada de linha / Alto-falante frontal / Microfone

Armazenamento

- 10 x Conectores SATA3 6,0 Gb/s, suporte RAID (RAID 0, RAID 1, RAID 5, RAID 10, Tecnologia de Armazenamento Rápido Intel® 13), NCQ, AHCI e Conexão a Quente e Tecnologia Protetora de HDD ASRock
(O conector S_SATA3_3 é compartilhada com a porta eSATA)
(O conector S_SATA3_2 é compartilhada com a porta Ultra M.2 Socket)
- * RAID é compatível apenas com as portas SATA3_0 ~ SATA3_5.
- 1 x conector eSATA, suporta NCQ, AHCI e Hot Plug
- 1 x soquete Ultra M.2, suporta módulo M.2 SATA3 6,0 Gb/s e módulo M.2 PCI Express Gen3 x4 (32 Gb/s)

Conector

- 1 x suporte porta COM
- 1 x Plataforma TPM
- 1 x suporte LED de alimentação
- 2 x conectores ventilador CPU (1 x 4 pinos, 1 x 3 pinos)
- 2 x conectores ventilador chassis (1 x 4 pinos, 1 x 3 pinos)
(Controle de Velocidade da Ventoinha Inteligente)
- 1 x conector ventilador alimentação (3 pinos)
- 1 x conector alimentação ATX 24 pinos
- 1 x Conector de energia 8-pinos 12V (Conector de energia de alta densidade)
- 1 x Conector Protetor de HDD
- 1 x Conector de energia PCIe
- 1 x conector de áudio do painel frontal
- 1 x Conector Thunderbolt AIC
- 2 x Plataformas USB 2.0 (Suporta 4 portas USB 2.0) (Suporta Proteção ESD (Proteção Total Contra Picos ASRock))
- 1 x Plataformas USB 3.0 (Suporta 2 portas USB 3.0) (Suporta Proteção ESD (Proteção Total Contra Picos ASRock))
- 1 x Dr. Debug com LED
- 1 x Interruptor de alimentação LED
- 1 x Interruptor de reinicialização LED
- 1 x Interruptor de Seleção de BIOS

Funções da BIOS

- 2 x BIOS UEFI oficial da AMI de 128Mb com suporte de interface multilíngue (1 x BIOS principal e 1 x BIOS de reserva)
- Suporta a tecnologia Secure Backup UEFI
- ACPI 1.1 compatível com eventos de despertar

- Suporta SMBIOS 2.3.1
- Multi-ajuste de tensão de CPU, DRAM, PCH 1,05V, PCH 1,5V, VPPM

Monitor de hardware

- Sensor de temperatura da CPU/Gabinete
- Taquímetro do ventilador CPU/Chassi/Alimentação
- Ventoinha silenciosa da CPU/Gabinete (Auto ajusta velocidade da ventoinha do gabinete pela temperatura da CPU)
- Controle de multi velocidade da Ventoinha da CPU/Gabinete
- Monitoramento da tensão: +12V, +5V, +3,3 V, Tensão de Entrada da CPU, Tensões internas da CPU

SO

- Microsoft® Windows® 10 64-bit / 8.1 32-bit / 8.1 64-bit / 8 32-bit / 8 64-bit / 7 32-bit / 7 64-bit

Certificações

- FCC, CE, WHQL
- Preparada para ErP/EuP (é necessária uma fonte de alimentação preparada para ErP/EuP)

* Para obter informações detalhadas sobre o produto, por favor, visite o nosso site: <http://www.asrock.com>



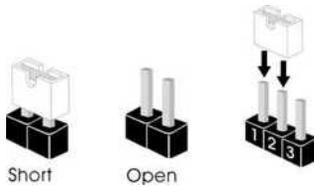
Por favor, observe que existe um certo risco envolvendo overclocking, incluindo o ajuste das definições na BIOS, a aplicação de tecnologia Untied Overclocking ou a utilização de ferramentas de overclocking de terceiros. O overclocking poderá afetar a estabilidade do sistema ou mesmo causar danos nos componentes e dispositivos do seu sistema. Ele deve ser realizado por sua conta e risco. Não nos responsabilizamos por possíveis danos causados pelo overclocking.



Devido às limitações, o tamanho real da memória pode ser menor que 4GB para a reserva de uso do sistema nos sistemas operacionais Windows® 32-bits. Os sistemas operacionais Windows® 64-bits não possuem estas limitações. Pode utilizar o ASRock XFast RAM para utilizar a memória que o Windows® não utiliza.

1.3 Configuração dos jumpers

A imagem abaixo mostra como os jumpers são configurados. Quando a tampa do jumper é colocada nos pinos, o jumper é "Curto". Se não for colocada uma tampa de jumper nos pinos, o jumper é "Aberto". A imagem mostra um jumper de 3 pinos cujos pino1 e pino2 estão "Curtos" quando a tampa do jumper é colocada nestes 2 pinos.



Apagar o Jumper CMOS
(CLRCMOS1)
(ver p.1, N.º 20)



CLRCMOS1 permite que você apague os dados no CMOS. Para apagar e reinicializar os parâmetros do sistema nos valores predefinidos, desligue o computador e desplugue a tomada da alimentação. Depois de aguardar 15 segundos, utilize a tampa do jumper para ligar o pino2 e o pino3 no CLRCMOS1 durante 5 segundos. No entanto, não apague o CMOS logo após ter realizado a atualização da BIOS. Se você precisar apagar o CMOS logo após ter terminado uma atualização da BIOS, deverá primeiro iniciar o sistema e voltar a encerrá-lo antes de apagar o CMOS. Por favor, observe que a senha, data, hora e perfil padrão do usuário serão apagados só se a bateria CMOS for removida.



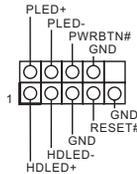
O Interruptor para limpar o CMOS tem a mesma função do Jumper para limpar o CMOS.

1.4 Suportes e conectores onboard



Os conectores e suportes onboard NÃO são jumpers. NÃO coloque tampas de jumpers sobre estes terminais e conectores. Colocar tampas de jumpers sobre os terminais e conectores irá causar danos permanentes à placa-mãe.

Suporte do painel de sistema
(PAINEL1 de 9 pinos)
(ver p.1, N.º 17)



Ligue o botão de alimentação, o botão de reinicialização e o indicador do estado do sistema no chassi deste suporte, de acordo com a descrição abaixo. Observe os pinos positivos e negativos antes de conectar os cabos.



PWRBTN (Botão de alimentação):

Conecte o botão de alimentação no painel frontal do chassi. Você pode configurar a forma para desligar o seu sistema através do botão de alimentação.

RESET (Botão de reinicialização):

Conecte o botão de reinicialização no painel frontal do chassi. Pressione o botão de reinicialização para reiniciar o computador, se ele congela e falha ao realizar um reinício normal.

PLED (LED de alimentação do sistema):

Conecte o indicador do estado da alimentação no painel frontal do chassi. O LED ficará aceso quando o sistema estiver em funcionamento. O LED ficará piscando quando o sistema estiver nos estados de suspensão S1/S3. O LED ficará desligado quando o sistema estiver no estado de suspensão S4 ou desligado (S5).

HDLED (LED de atividade do disco rígido):

Conecte o LED de atividade do disco rígido no painel frontal do chassi. O LED ficará aceso quando o disco rígido estiver lendo ou registrando dados.

O design do painel frontal poderá variar dependendo do chassi. Um módulo de painel frontal consiste principalmente em um botão de alimentação, um botão de reinicialização, um LED de alimentação, um LED de atividade do disco rígido, um alto-falante, etc. Ao conectar seu módulo de painel frontal do chassi a este conector, certifique-se de que os fios e os pinos correspondem de forma correta.

Suporte LED de alimentação (PLED1 de 3 pinos) (ver p.1, N.º 16)



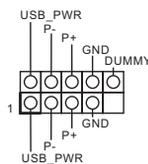
Por favor, conecte o LED de alimentação do chassi neste suporte para indicar o estado de alimentação do sistema.

Conectores série ATA3 (S_SATA3_0_1: ver p.1, N.º 10) (S_SATA3_2_3: ver p.1 No. 12) (SATA3_0_3: ver p.1, N.º 13) (SATA3_1_4: ver p.1 No. 14) (SATA3_2_5: ver p.1 No. 15)



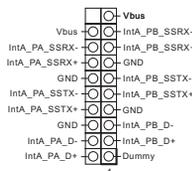
Estes dez conectores SATA3 suportam cabos de dados SATA para dispositivos de armazenamento interno com uma taxa de transferência de dados de até 6,0 Gb/s. Se a porta eSATA no painel posterior de E/S estiver ligada, a S_SATA3_3 interna não irá funcionar. Se o soquete Ultra M.2 foi ocupado, o S_SATA3_2 não irá funcionar. * RAID é compatível apenas com as portas SATA3_0 ~ SATA3_5.

Suportes USB 2.0 (USB5_6 de 9 pinos) (ver p.1, N.º 24) (USB7_8 de 9 pinos) (ver p.1, N.º 23)



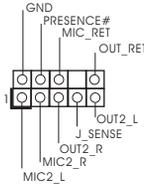
Além das quatro portas USB 2.0 no painel de E/S, existem dois suportes nesta placa principal. Cada suporte USB 2.0 pode suportar duas portas.

Suportes USB 3.0 (USB3_5_6 de 19 pinos) (ver p.1, N.º 8)



Além das quatro portas USB 3.0 no painel de E/S, existe um suporte nesta placa principal. Cada suporte USB 3.0 pode suportar duas portas.

Suporte de áudio do painel frontal
(HD_AUDIO1 de 9 pinos)
(ver p.1, N.º 28)

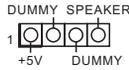


Este suporte destina-se à conexão dos dispositivos de áudio no painel de áudio frontal.



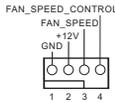
1. O Áudio de alta definição suporta Sensor de Adaptador, mas o fio do painel no chassi deverá suportar HDA para funcionar corretamente. Por favor, siga as instruções no nosso manual e no manual do chassi para instalar o seu sistema.
2. Se utilizar um painel de áudio AC'97, instale-o no terminal de áudio do painel frontal de acordo com os passos abaixo:
 - A. Ligue Mic_IN (MIC) a MIC2_L.
 - B. Conecte o Audio_R (RIN) a OUT2_R e Audio_L (LIN) a OUT2_L.
 - C. Conecte a ligação Terra (GND) à Terra (GND).
 - D. MIC_RET e OUT_RET destinam-se apenas ao painel de áudio HD. Você não precisa ligá-los ao painel de áudio AC'97.
 - E. Para ativar o microfone frontal, vá à guia "Microfone Frontal" no painel de controle Realtek e ajuste o "Volume de gravação".

Suporte do alto-falante do chassi
(SPEAKER1 de 4 pinos)
(ver p.1, N.º 21)



Por favor, conecte o alto-falante do chassi a este suporte.

Conectores do ventilador do chassi e alimentação
(CHA_FAN1 de 4 pinos)
(ver p.1, N.º 22)

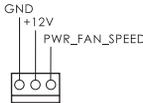


Por favor, conecte os cabos do ventilador aos conectores do ventilador e corresponda o fio preto no pino terra. Velocidade do ventilador CHA_FAN pode ser controlado através UEFI ou A-Tuning.

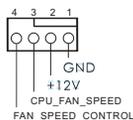
(CHA_FAN2 3 pinos)
(ver p.1, N.º 9)



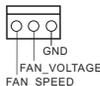
(PWR_FAN1 de 3 pinos)
(ver p.1, N.º 30)



Conectores do ventilador da CPU
(CPU_FAN1 de 4 pinos)
(ver p.1, N.º 4)

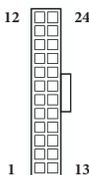


(CPU_FAN2 de 3 pinos)
(ver p.1, N.º 5)



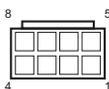
Esta placa mãe inclui um conector de ventilador da CPU (Ventilador silencioso) de 4 pinos. Se você pretende conectar um ventilador da CPU de 3 pinos, por favor, conecte-o ao Pino 1-3.

Conector de alimentação ATX
(ATXPWR1 de 24 pinos)
(ver p.1, N.º 7)



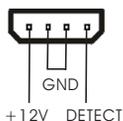
Esta placa-mãe inclui um conector de alimentação ATX de 24 pinos. Para utilizar uma fonte de alimentação ATX de 20 pinos, introduza-a no Pino 1 e Pino 13.

Conector de alimentação de 12V ATX
(ATX12V1 de 8 pinos)
(ver p.1, N.º 2)



Esta placa-mãe inclui um conector de alimentação de 12V ATX de 8 pinos. Para utilizar uma fonte de alimentação ATX de 4 pinos, introduza-a no Pino 1 e Pino 5.

Conector de Energia PCIe
(PCIE_PWR1 4-pinos)
(ver p.1, N.º 27)



Por favor conecte um cabo de alimentação molex de 4 pinos a este conector quando mais de três placas de vídeo estão instaladas.

Conector Protetor de HDD
(SATA_PWR_1 4-pinos)
(ver p.1, N.º 11)



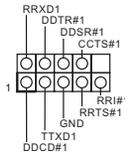
Por favor, conecte o Cabo Protetor de HDD a este conector para gerenciar o estado de energia do HDD.

Conector Thunderbolt AIC
(5-pinos TBT1)
(ver p.1, N.º 26)



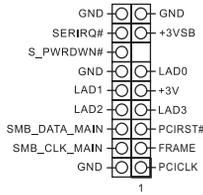
Por favor, conecte um cabo de sinal de 5 pinos (cabo GPIO) a este conector quando você instalar uma placa adicional Thunderbolt™ (AIC).

Suporte da porta serial
(COM1 de 9 pinos)
(ver p.1, N.º 25)



Este suporte recebe um
módulo da porta serial.

Suporte TPM
(TPMS1 de 17 pinos)
(ver p.1, N.º 6)



Este conector suporta um sistema
com Módulo de Plataforma Con-
fiável (TPM), que pode armazenar
com segurança chaves, certifica-
dos digitais, senhas e dados. Um
sistema TPM também ajuda a
melhorar a segurança de rede, a
proteger identidades digitais e a
garantir a integridade da plata-
forma.

1.5 Interruptores inteligentes

A placa-mãe tem quatro chaves inteligentes: Chave liga/desliga, Chave de Reset, Chave para Limpar CMOS e uma Chave de Seleção da BIOS, que permite aos usuários rapidamente ligar/desligar o sistema, reiniciar o sistema, limpar os valores de CMOS ou inicializar de BIOS diferentes.

Interruptor de alimentação
(PWRBTN)
(ver p.1, N.º 18)



O interruptor de alimentação permite aos usuários ligar/desligar o sistema rapidamente.

Interruptor de reinicialização
(RSTBTN)
(ver p.1, N.º 19)



O interruptor de reinicialização permite aos usuários reinicializar o sistema rapidamente.

Interruptor para apagar o CMOS
(CLRCBTN)
(veja p.3, No. 15)



O interruptor para apagar o CMOS permite aos usuários apagar os valores CMOS rapidamente.



Esta função pode ser utilizada apenas quando o computador e a fonte de alimentação estiverem desligados.

Interruptor de seleção de BIOS
(BIOS_SEL1)
(ver pág.1 No. 29)



O interruptor de seleção de BIOS permite que o sistema reinicie a partir do BIOS A ou BIOS B.



Esta placa-mãe possui dois chips de BIOS, um BIOS principal (BIOS_A) e um BIOS de reserva (BIOS_B), que aumenta a segurança e estabilidade do seu sistema. Em condições normais, o sistema funcionará no BIOS principal. No entanto, se o BIOS principal estiver corrompido ou danificado, coloque o Interruptor de Seleção de BIOS na posição "B" e o BIOS de reserva irá assumir as funções no próximo reinício do sistema. Em seguida, utilize "Secure Backup UEFI" no utilitário de configuração do BIOS para duplicar a cópia de um arquivo BIOS funcional para o BIOS principal para garantir o funcionamento normal do sistema. Por motivos de segurança, os usuários não podem atualizar manualmente a cópia de backup de BIOS. Os usuários podem consultar os LED de BIOS (BIOS_A_LED ou BIOS_B_LED) para identificar qual BIOS está ativado nesse momento.

1 Giriş

ASRock'ın zorlu kalite kontrol süreçlerinden geçmiş olan ASRock Fatal1ty X99M Killer Series anakartını satın aldığınız için teşekkür ederiz. Sağlam tasarımı ile ASRock'ın kalite ve dayanıklılık taahhüdüne uygun şekilde mükemmel performans sağlar.



Anakart özellikleri ve BIOS yazılımı güncellenebileceğinden, bu dokümantasyonun içeriği herhangi bir bildirimde bulunulmaksızın değiştirilebilir. Bu dokümantasyon üzerinde herhangi bir değişiklik yapılması halinde, güncellenmiş sürüm, herhangi bir bildirim yapılmaksızın ASRock'ın web sitesinde yer alacaktır. Bu anakart ile ilgili olarak teknik destek almak istiyorsanız, lütfen kullandığımız model hakkında özel bilgiler için web sitemizi ziyaret edin. En güncel VGA kartları ve CPU destek listelerini de ASRock'ın web sitesinden bulabilirsiniz. ASRock web sitesi <http://www.asrock.com>.

1.1 Ambalaj İçeriği

- ASRock Fatal1ty X99M Killer Series Anakartı (Micro ATX Form Faktörü)
- ASRock Fatal1ty X99M Killer Series Hızlı Kurulum Kılavuzu
- ASRock Fatal1ty X99M Killer Series Destek CD'si
- 1 x I/O Panel Kalkanı
- 1 x ASRock SLI_Bridge Kartı
- 2 x Seri ATA (SATA) Veri Kablosu (İsteğe Bağlı)
- 1 x Sabit Disk Kaydedici Kablosu
- 1 x Ultra M.2 Yuvaları için vida

1.2 Özellikler

- Platform**
- Micro ATX Form Faktörü
 - Yüksek Yoğunluklu Cam Elyaf PCB

- CPU**
- LGA 2011-3 Soketi için Intel® Core™ i7 ve Xeon® 18 Çekirdek İşlemci Ailesi Desteği
 - Dijital Güç tasarımı
 - 12 Güç Safhası tasarımı
 - Intel® Turbo Boost 2.0 Teknolojisini destekler
 - Untied Overclocking Teknolojisini destekler

- Yonga kümesi**
- Intel® X99

- Bellek**
- Dört Kanallı DDR4 Bellek Teknolojisi
 - 4 x DDR4 DIMM Yuvası
 - ECC olmayan, ara belleğe alınmamış DDR4 3000+(OC)*/2933+(OC)/ 2800(OC)/2400(OC)/ 2133/1866/1600/1333/1066 belleği destekler
- * Ayrıntılı bilgi için ASRock'ın web sitesindeki Bellek Desteği Listesine bakın. (<http://www.asrock.com/>)
- ECC-dışı RDIMM Desteği (Kayıtlı DIMM)
 - DDR4 ECC, LGA 2011-3 Sokette Intel® Xeon® işlemci E5 serisi ile birlikte ara belleksiz bellek /RDIMM desteği
 - Maksimum sistem belleği kapasitesi: 64GB (bkz. DİKKAT)
 - Intel® Üstün Bellek Profili (XMP)2.0 özelliğini destekler
 - DIMM Yuvalarında 15µ Altın Temas

- Genişletme Yuvası**
- 2 x PCI Express 3.0 x16 Yuva (PCIE1 @ x16 mod; PCIE2 @ x16 mod)
- * 28 pinli CPU'yu takarsanız, PCIE1/PCIE2, x16/x8'te çalışır.
- 1 x PCI Express 2.0 x16 yuva (PCIE3: x4 modu)
 - AMD Quad CrossFireX™ ve CrossFireX™ destekler
 - NVIDIA® Quad SLI™ ve SLI™ destekler
 - VGA PCIe Yuvasında (PCIE1 ve PCIE2) 15µ Altın Temas

Ses

- İçerik Koruma Özelliği ile 7.1 CH HD Ses (Realtek ALC1150 Ses Codec Bileşeni)
- Üstün Blu-ray Ses desteği
- Dalgalanma Koruması Destekler (ASRock Tam Ani Gerilim Koruması)
- Purity Sound™ 2 destekler
 - Nichicon Fine Gold Serisi Ses Kapakları
 - Fark Yükseltici ile 115dB SNR DAC
 - TI® NE5532 Premium Kulaklık Amplifikatörü (600 Ohm'a kadar kulaklıkları destekler)
 - Doğrudan Bağlantı Teknolojisi
 - EMI Koruma Kapağı
 - PCB Ayırma Koruma
- DTS Connect işlevini destekler

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200 Serisi (PCIe x1 Giga-bit LAN 10/100/1000 Mb/s)
- Qualcomm® Atheros® Güvenli İnternet Açışı Teknolojisini destekler (Qualcomm® Atheros® Killer™ E2200 Serisi'nde)
- LAN Açılışını Destekler
- Yıldırım/ESD Koruması Destekler (ASRock Tam Ani Gerilim Koruması)
- Enerji Verimliliğine Sahip Ethernet 802.3az işlevini destekler
- PXE özelliğini destekler

Arka Panel I/O

- 1 x PS/2 Fare/Klavye Bağlantı Noktası
- 1 x Optik SPDIF Çıkışı Bağlantı Noktası
- 1 x eSATA Bağlayıcısı
- 3 x USB 2.0 Bağlantı Noktası (ESD Koruması Destekler (ASRock Tam Ani Gerilim Koruması))
- 1 x Fatal1ty Fare Bağlantı Noktası (USB 2.0) (ESD Koruması Destekler (ASRock Tam Ani Gerilim Koruması))
- 4 x USB 3.0 Bağlantı Noktası (ESD Koruması Destekler (ASRock Tam Ani Gerilim Koruması))
- LED'e sahip 2 x RJ-45 LAN Bağlantı Noktaları (ACT/LINK LED ve SPEED LED)
- 1 x CMOS'u Temizleme Anahtarı
- HD Ses Jakları: Arka Hoparlör / Merkezi / Bas / Hat Girişi / Ön Hoparlör / Mikrofon

Depolama

- 10 x SATA3 6,0 Gb/s Bağlayıcısı, RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage Technology 13), NCQ, AHCI, Tak Çıkar ve ASRock Sabit Disk Kaydedici Teknolojisi destekler (S_SATA3_3 bağlayıcısı eSATA bağlantı noktasıyla paylaşılır)
(S_SATA3_2 bağlayıcısı Ultra M.2 Socket bağlantı noktasıyla paylaşılır)
- * RAID yalnızca SATA3_0 ~ SATA3_5 bağlantı noktalarında desteklenir.
- 1 x eSATA Konnektörü, NCQ, AHCI ve Hot Plug işlevlerini destekler
- 1 x Ultra M.2 Soket, M.2 SATA3 6,0 Gb/s modülünü ve Gen3 x4 (32 Gb/s) değerine kadar M.2 PCI Express modülünü destekler

Bağlayıcı

- 1 x COM Bağlantı Noktası Bağlantısı
- 1 x TPM Bağlantısı
- 1 x Güç LED Bağlantısı
- 2 x İşlemci Fan Bağlayıcıları (1 x 4 pimli, 1 x 3 pimli)
- 2 x Kasa Fanı Bağlayıcıları (1 x 4 pimli, 1 x 3 pimli) (Akıllı Fan Hızı Kontrolü)
- 1 x Güç Fanı Bağlayıcısı (3 pimli)
- 1 x 24 pim ATX Güç Bağlayıcısı
- 1 x 8 pim 12V Güç Bağlayıcısı (Yüksek Yoğunluklu Güç Bağlayıcısı)
- 1 x Sabit Disk Kaydedici Bağlayıcısı
- 1 x PCIe Güç Bağlayıcısı
- 1 x Ön Panel Ses Bağlayıcısı
- 1 x Thunderbolt AIC Bağlayıcısı
- 2 x USB 2.0 Bağlantısı (4 USB 2.0 bağlantı noktası destekler) (ESD Koruması Destekler (ASRock Tam Ani Gerilim Koruması))
- 1 x USB 3.0 Bağlantısı (2 USB 3.0 bağlantı noktası destekler) (ESD Koruması Destekler (ASRock Tam Ani Gerilim Koruması))
- 1 x LED'li Dr. Debug
- 1 x LED'li Güç Anahtarı
- 1 x LED'li Sıfırlama Anahtarı
- 1 x BIOS Seçim Anahtarı

BIOS Özellikleri

- Çok dilli GUI desteğiyle 2 x 128Mb AMI UEFI Legal BIOS (1 x Ana BIOS ve 1 x Yedek BIOS)
- Güvenli Yedekleme UEFI Teknolojisini destekler
- ACPI 1.1 Uyumlu uyandırma olayları
- SMBIOS 2.3.1 Desteği
- CPU, DRAM, PCH 1.05V, PCH 1.5V, VPPM Voltaj Çoklu Ayarı

Donanım Monitörü

- CPU/Kasa sıcaklığı tespiti
- CPU/Kasa/Güç Fanı Devirölçer
- İşlemci/Kasa Sessiz Fan (İşlemci sıcaklığıyla otomatik ayarlı kasa fanı hızı)
- CPU/Kasa Fanı çoklu hız kontrolü
- Voltaj izleme: +12V, +5V, +3,3V, İşlemci Giriş Voltajı, İşlemci İç Voltajları

OS

- Microsoft® Windows® 10 64-bit / 8.1 32-bit / 8.1 64-bit / 8 32-bit / 8 64-bit / 7 32-bit / 7 64-bit

Belgeler

- FCC, CE, WHQL
- ErP/EuP için hazır (ErP/EuP için hazır güç beslemesi gereklidir)

* Detaylı ürün bilgisi için, lütfen web sitemizi ziyaret edin: <http://www.asrock.com>



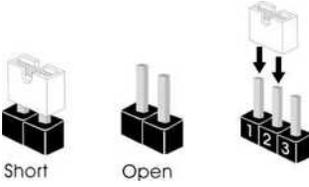
Lütfen, BIOS ayarlarını düzenleme, Bağımsız Hız Aşırtma Teknolojinin uygulanması ya da üçüncü kişilerin hız aşırma araçlarının kullanılması da dahil olmak üzere tüm hız aşırma işlemlerinin belirli bir risk taşıdığını unutmayın. Hız aşırma, sisteminizin dayanıklılığını etkileyebilir, hatta sisteminizde yer alan bileşen ve aygıtlara zarar verebilir. Bunu riski ve masrafları size ait olmak üzere gerçekleştirilmelidir. Hız aşırmadan doğabilecek zararlar konusunda sorumlu olmayacağız.



Sınırlamalar nedeniyle, gerçek bellek boyutu Windows® 32-bit işletim sistemleri çerçevesinde sistem kullanımına ayrıldığı için 4GB'den az olabilir. Windows® 64-bit işletim sistemlerinde bu tür sınırlamalar yoktur. Windows® tarafından kullanılmayan bellekten faydalanmak için ASRock XFast RAM'i kullanabilirsiniz.

1.3 Bağlantı Teli Kurulumu

Çizim, bağlantı tellerinin kurulumunu göstermektedir. Tel kapağı, pimlerin üzerine yerleştirildiğinde, tel "Kısa" olur. Pimlerin üzerinde tel kapağı bulunmadığında, tel "Kısa" olur. Çizim, pin1 ve pin2 alanları "Kısa" olan ve bu iki pim üzerinde bir bağlantı teli kapağı bulunan 3-pin bağlantı telini göstermektedir.



CMOS'u Temizle Bağlantı
Teli
(CLRCMOS1)
(bkz. sf.1, No. 20)

1 2

Varsayılan

2 3

CMOS'u
Temizle

CLRCMOS1, CMOS verilerini temizlememizi sağlar. Sistem parametrelerini temizlemek ve varsayılan kurulum ayarlarına sıfırlamak için, lütfen bilgisayarı kapatın ve güç kablosunu güç beslemesinden çekin. 15 saniye bekledikten sonra, CLRCMOS1 üzerindeki pin2 ve pin3'ü 5 saniye boyunca kısaltmak için bir bağlantı teli kullanın. Ancak, CMOS'u lütfen BIOS'u güncelledikten hemen sonra temizlemeyin. BIOS'u güncelledikten hemen sonra CMOS'u temizlemeniz gerekirse, önce sistemi başlatın ve ardından CMOS temizleme işlemi öncesinde yeniden kapatın. Lütfen, parola, tarih, saat ve varsayılan kullanıcı profilinin yalnızca CMOS bataryası çıkarıldığında temizleneceğini unutmayın.



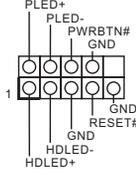
Clear CMOS Anahtarı, Clear CMOS bağlantı teli ile aynı işleve sahiptir.

1.4 Ekli Bağlantılar ve Bağlayıcılar



Ekli bağlantılar ve bağlayıcılar bağlantı teli değildir. Bağlantı teli kapaklarını bu bağlantı ve bağlayıcılar üzerine yerleştirmeyin. Bağlantı teli kapaklarının bağlantılar ile bağlayıcılar üzerine yerleştirilmesi, anakarta kalıcı hasar verebilir.

Sistem Paneli Bağlantısı
(9-pin PANEL1)
(bkz sf.1, No. 17)



Güç anahtarını bağlayın, kasa üzerindeki anahtar ile sistem durumu belirtecini aşağıdaki pim düzenine göre sıfırlayın. Kabloları bağlarken pozitif ve negatif pimleri not edin.



PWRBTN (Güç Anahtarı):

Güç anahtarını kasa ön paneline bağlayın. Güç anahtarını kullanarak sistemin hangi yöne hareketle kapanacağını seçebilirsiniz.

RESET (Sıfırlama Anahtarı):

Sıfırlama anahtarını kasa ön paneline bağlayın. Bilgisayarın kilitlemesi ve normal şekilde yeniden başlatılmaması halinde reset (sıfırla) düğmesine basın.

PLED (Sistem Güç LED'i):

Güç durumu göstergesini kasa ön paneline bağlayın. Sistem çalışırken LED ışığı yanacaktır. Sistem S1/S3 uyku durumdayken LED ışığı yanıp söner. Sistem S4 uyku durumunda ya da kapalıyken (S5) LED ışık kapanır.

HDLED (Sabit Disk Etkinlik LED'i):

Sabit sürücü etkinlik LED'ini kasa ön paneline bağlayın. Sabit sürücü veri okur ya da yazarken LED ışığı yanar.

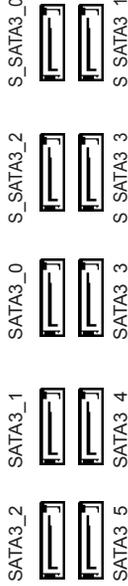
Ön panel tasarımı kasaya göre değişiklik gösterebilir. Bir ön panel modülü, temel olarak bir güç anahtarı, sıfırlama anahtarı, güç LED'i, sabit sürücü aktivitesi LED'i, hoparlör gibi birimlerden oluşur. Kasanızın ön panel modülünün bu bağlantıya takmadan önce, kablo düzenlemeleri ile pin düzenlemelerinin düzgün şekilde yapıldığından emin olun.

Güç LED Bağlantısı
(3-pin PLED1)
(bkz. sf.1, No. 16)



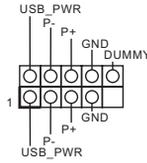
Sistemin güç durumunun belirtilmesi için lütfen güç LED'ini bu bağlantıya takın.

Seri ATA3 Bağlayıcıları
(S_SATA3_0_1:
bkz. sf.1, No. 10)
(S_SATA3_2_3:
bkz. s.1 No. 12)
(SATA3_0_3:
bkz. sf.1, No. 13)
(SATA3_1_4:
bkz. s.1 No. 14)
(SATA3_2_5:
bkz. s.1 No. 15)



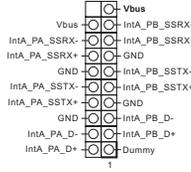
Bu on SATA3 bağlayıcısı, veri aktarım hızı 6,0 Gb/sn'ye kadar olan dahili depolama aygıtları için tasarlanmış SATA veri kablolarını destekler. Arka I/O üzerindeki eSATA bağlantı noktası bağlı durumdaysa, dahili S_SATA3_3 çalışmayacaktır. Ultra M.2 Soketi doluysa, dahili S_SATA3_2 çalışmaz.
* RAID yalnızca SATA3_0 ~ SATA3_5 bağlantı noktalarında desteklenir.

USB 2.0 Bağlantıları
(9-pin USB5_6)
(bkz. sf.1, No. 24)
(9-pin USB7_8)
(bkz. sf.1, No. 23)



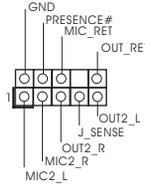
Bu anakart üzerinde, I/O paneli üzerindeki dört USB 2.0 bağlantı noktasının yanı sıra, iki adet bağlantı bulunmaktadır. Her USB 2.0 bağlantısı, iki adet bağlantı noktasını destekleyebilir.

USB 3.0 Bağlantıları
(19-pin USB3_5_6)
(bkz. sf.1, No. 8)



Bu anakart üzerinde, I/O paneli üzerindeki dört USB 3.0 bağlantı noktasının yanı sıra, bir adet bağlantı bulunmaktadır. Her USB 3.0 bağlantısı, iki adet bağlantı noktasını destekleyebilir.

Ön Panel Ses Bağlantısı
(9-pin HD_AUDIO1)
(bkz. sf.1, No. 28)

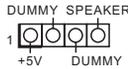


Bu bağlantı, ses aygıtlarının ön ses paneline bağlanması içindir.



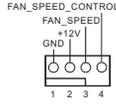
- Yüksek Tanımlı Ses, Jak Algılama özelliğini destekler, ancak bu işlevin düzgün çalışabilmesi için kasa üzerindeki panel kablosunun HDA işlevini desteklemesi gerekmektedir. Sisteminizi kurarken, lütfen kılavuzumuzdaki talimatlar ile kasa kılavuzundaki talimatları izleyin.
- AC'97 ses paneli kullanıyorsanız, lütfen aşağıdaki adımları uygulayarak ön panel ses bağlantısına takın:
 - Mic_IN'i (MIC) MIC2_L'ye bağlayın.
 - Audio_R'yi (RIN) OUT2_R'ye ve Audio_L'yi (LIN) OUT2_L'ye bağlayın.
 - Toprak'ı (GND) Toprak'a (GND) bağlayın.
 - MIC_RET ve OUT_RET yalnızca HD ses paneli içindir. AC'97 ses paneli için bunları bağlamanıza gerek yoktur.
 - Ön mikrofonu etkinleştirmek için, Realtek Kontrol panelinde "FrontMic" sekmesine gidin ve "Kayıt Ses Seviyesi"ni ayarlayın.

Kasa Hoparlör Bağlantısı
(4-pin SPEAKER1)
(bkz. sf.1, No. 21)



Lütfen kasa hoparlörünü bu bağlantıya takın.

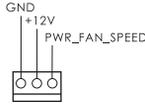
Kasa ve Güç Fanı
Bağlayıcıları
(4-pin CHA_FAN1)
(bkz sf.1, No. 22)



(3-pin CHA_FAN2)
(bkz sf.1, No. 9)

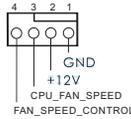


(3-pin PWR_FAN1)
(bkz sf.1, No. 30)



Lütfen fan kablolarını fan bağlayıcılarına takın ve siyah teli topraklama pinine bağlayın. CHA_FAN fan hızı UEFI veya A-Tuning yoluyla kontrol edilebilir.

CPU Fan Bağlayıcıları
(4-pin CPU_FAN1)
(bkz sf.1, No. 4)

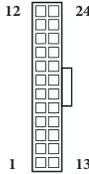


(3-pin CPU_FAN2)
(bkz sf.1, No. 5)



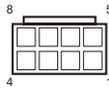
Bu anakart, 4-Pin CPU fan (Sessiz Fan) bağlayıcısı sağlamaktadır. 3-Pin CPU fan bağlamak istiyorsanız, lütfen Pin 1-3'ü kullanın.

ATX Güç Bağlayıcısı
(24-pin ATXPWR1)
(bkz. sf.1, No. 7)



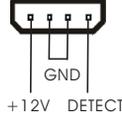
Bu anakart, 24-pin ATX güç bağlayıcısı sağlamaktadır. 20-pin ATX güç beslemesi kullanmak için, lütfen Pin 1 ve Pin 13'e bağlayın.

ATX 12V Güç Bağlayıcısı
(8-pin ATX12V1)
(bkz. sf.1, No. 2)



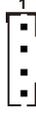
Bu anakart, 8-pin ATX 12V güç bağlayıcısı sağlamaktadır. 4-pin ATX güç beslemesi kullanmak için, lütfen Pin 1 ve Pin 5'e bağlayın.

PCIe Güç Bağlayıcısı
(4 pimli PCIE_PWR1)
(bkz. sf.1, No. 27)



Üçten fazla grafik kartı takıldığında, lütfen bu bağlayıcıya bir 4 pim molex güç kablosu bağlayın.

Sabit Disk Kaydedici Bağlayıcısı
(4 pimli SATA_PWR_1)
(bkz. sf.1, No. 11)



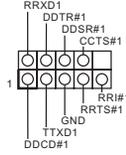
Sabit diskin güç durumunu yönetmek için lütfen bu bağlayıcıya Sabit Disk Kaydedici Kablosu bağlayın.

Thunderbolt AIC Bağlayıcısı
(5 pimli TBT1)
(bkz. sf.1, No. 26)



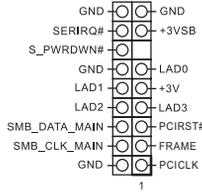
Bir Thunderbolt™ eklenti kartı (AIC) taktığımızda, lütfen bu bağlayıcıya 5 pimli bir sinyal kablosu (GPIO kablosu) bağlayın.

Seri Bağlantı Noktası Bağlantısı
(9-pin COM1)
(bkz. sf.1, No. 25)



Bu bağlantısı seri bağlantı yuvası modülünü destekler.

TPM bağlantısı
(17-pin TPMS1)
(bkz. sf.1, No. 6)



Bu bağlayıcı, anahtarlar, dijital sertifikalar, parolalar ve verileri güvenli bir şekilde saklama özelliği bulunan Güvenilir Platform Modülü (TPM) sistemini destekler. TPM sistemleri, aynı zamanda ağ güvenliğinin artırılması, dijital kimliklerin korunması ve platform bütünlüğünün sağlanmasına da yardımcıdır.

1.5 Akıllı Anahtar

Anakartta dört adet akıllı düğme bulunur: Güç Düğmesi, Sıfırlama Düğmesi, CMOS Temizleme Düğmesi ve bir BIOS Seçim Anahtarı kullanıcıların sistemi hızlı bir şekilde açıp kapatmalarını, sistemi sıfırlamalarını, CMOS değerlerini temizlemelerini ya da farklı BIOS'tan yüklemelerini sağlar.

Güç Düğmesi
(PWRBTN)
(bkz. sf.1, No. 18)



Güç Düğmesi,
kullanıcıların sistemi
hızlı bir şekilde açıp
kapatmalarını sağlar.

Sıfırlama Düğmesi
(RSTBTN)
(bkz. sf.1, No. 19)



Sıfırlama Düğmesi
kullanıcıların sistemi hızlı
bir şekilde sıfırlamalarını
sağlar.

CMOS Temizleme
Düğmesi
(CLRBTN)
(bkz. sf.3, No. 15)



CMOS Temizleme
Düğmesi kullanıcıların
CMOS değerlerini hızlı
bir şekilde temizlemelerini
sağlar.



Bu işlev yalnızca bilgisayarımızı kapattığımızda ve fişini prizden çektiğimizde çalışır.

BIOS Seçim Anahtarı
(BIOS_SEL1)
(bkz. s.1, No. 29)



BIOS Seçim Anahtarı sistemin
BIOS A veya BIOS B'den önyük-
lenmesini sağlar.



Bu anakartta sisteminizin güvenliğini ve kararlılığını artıran ana BIOS (BIOS_A) ve yedek BIOS (BIOS_B) olmak üzere iki adet BIOS çipi vardır. Normalde sistem ana BIOS'ta çalışır. Ancak, ana BIOS bozuka veya hasarlıysa, BIOS Seçimi Anahtarını "B"ye döndürün, sonraki sistem önyüklemesinde yedek BIOS çalışır. Ardından, BIOS dosyalarının çalışan bir kopyasını ana BIOS'a kopyalamak için UEFI Kurulum Yardımcı Programı'nda "Secure Backup UEFI"yi (Güvenli Yedekleme UEFI) kullanarak normal sistem çalışmasını sağlayın. Güvenlik nedeniyle, kullanıcılar yedek BIOS'u manuel olarak güncelleyemez. Kullanıcılar, o anda hangi BIOS'un (BIOS_A_LED veya BIOS_B_LED) etkin olduğunu tanımlamak için BIOS LED'lerine bakabilirler.

1 개요

ASRock Fatal1ty X99M Killer Series 마더보드를 구입해 주셔서 감사합니다. 이 마더보드는 ASRock의 일관되고 엄격한 품질관리 하에 생산되어 신뢰성이 우수합니다. 품질과 내구성에 대한 ASRock의 기준에 부합하는 우수한 성능과 견고한 설계를 제공합니다.



마더보드 규격과 BIOS 소프트웨어를 업데이트할 수도 있기 때문에, 이 설명서의 내용은 예고 없이 변경될 수 있습니다. 이 설명서가 변경될 경우, 업데이트된 버전은 ASRock의 웹사이트에서 추가 통지 없이 제공됩니다. 이 마더보드와 관련하여 기술적 지원이 필요한 경우, 당사의 웹사이트를 방문하여 사용 중인 모델에 대한 구체적인 정보를 구하십시오. ASRock의 웹사이트에서는 최신 VGA 카드와 CPU 지원 목록도 찾을 수 있습니다. ASRock 웹사이트 <http://www.asrock.com>.

1.1 포장 내용물

- ASRock Fatal1ty X99M Killer Series 마더보드 (Micro ATX 폼 팩터)
- ASRock Fatal1ty X99M Killer Series 간편 설치 안내서
- ASRock Fatal1ty X99M Killer Series 지원 CD
- I/O 패널 실드 1 개
- ASRock SLI_Bridge 카드 1 개
- 시리얼 ATA (SATA) 데이터 케이블 2 개 (선택 품목)
- HDD 세이버 케이블 1 개
- Ultra M.2 소켓용 나사 1 개

1.2 규격

플랫폼

- Micro ATX 폼 팩터
- 고밀도 유리 직물 PCB

CPU

- LGA 2011-3 소켓용 Intel® Core™ i7 및 Xeon® 18 코어 프로세서 제품군 지원
- Digi 전원 구조
- 12 개 전원 위상 구조
- Intel® Turbo Boost 2.0 기술 지원
- 언타이드 오버클러킹 (Untied Overclocking) 기술 지원

칩세트

- Intel® X99

메모리

- Quad Channel DDR4 메모리 기술
- DDR4 DIMM 슬롯 4 개
- DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/2133/1866/ 1600/1333/1066 비-ECC, 비버퍼링 메모리 지원
- * 추가 정보를 원하시면 ASRock 웹사이트에 있는 메모리 지원 목록을 참조하십시오. (<http://www.asrock.com/>)
- 비-ECC RDIMM(등록 DIMM) 지원
- LGA 2011-3 소켓에서 버퍼링되지 않은 메모리 DDR4 ECC/Intel® Xeon® 프로세서 E5 시리즈를 채택한 RDIMM 지원
- 시스템 메모리 최대 용량 :64GB (주의 참조)
- Intel® Extreme Memory Profile (XMP)2.0 지원
- DIMM 슬롯에 15μ Gold Contact 장착

확장 슬롯

- 의 PCI Express 3.0 x16 슬롯 2 개 (PCIE1 @ x16 모드 , PCIE2 @ x16 모드)
- * 레인이 28 개인 CPU 를 설치하면 , PCIE1/PCIE2 가 x16/x8 에서 실행됩니다 .
- PCI Express 2.0 x16 슬롯 1 개 (PCIE3: x4 모드)
- AMD Quad CrossFireX™ 및 CrossFireX™ 지원
- NVIDIA® Quad SLI™ 및 SLI™ 지원
- VGA PCIe 슬롯에 15μ Gold Contact 장착 (PCIE1 및 PCIE2)

오디오

- 콘텐츠 보호를 이용한 7.1 CH HD 오디오 지원 (Realtek ALC1150 오디오 코덱)
- 프리미엄 Blu-ray 오디오 지원
- 서지 보호 지원 (ASRock 풀 스파이크 보호)
- Purity Sound™ 2 지원
 - Nichicon Fine Gold 시리즈 오디오 캡
 - 디퍼렌셜 증폭기 포함 115dB SNR DAC
 - TI* NE5532 프리미엄 헤드셋 증폭기 (최대 600 옴 헤드셋 지원)
 - 다이렉트 드라이브 기술
 - EMI 차폐 커버
 - PCB 절연 차폐
- DTS 연결 지원

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200 시리즈 (PCIe x1 Gigabit LAN 10/100/1000 Mb/s)
- Qualcomm® Atheros® 보안 웨이크 온 인터넷 기술 지원 (Qualcomm® Atheros® Killer™ E2200 시리즈에서)
- Wake-On-LAN 지원
- 번개 /ESD 보호 지원 (ASRock 풀 스파이크 보호)
- 절전형 이더넷 802.3az 지원
- PXE 지원

후면 패널 I/O

- PS2 마우스 / 키보드 포트 1 개
- 광학 SPDIF 출력 포트 1 개
- eSATA 커넥터 1 개
- USB 2.0 포트 3 개 (ESD 보호 지원 (ASRock 풀 스파이크 보호))
- FatalIty 마우스 포트 1 개 (USB 2.0)(ESD 보호 지원 (ASRock 풀 스파이크 보호))
- USB 3.0 포트 4 개 (ESD 보호 지원 (ASRock 풀 스파이크 보호))
- LED 장착 RJ-45 LAN 포트 2 개 (ACT/LINK LED 및 SPEED LED)
- Clear CMOS 스위치 1 개
- HD 오디오 잭 : 후면 스피커 / 중앙 / 베이스 / 라인 입력 / 전면 스피커 / 마이크

저장 장치

- SATA3 6.0 Gb/s 커넥터 10 개가 RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel 빠른 저장 기술 13), NCQ, AHCI, 핫 플러그 및 ASRock HDD 세이버 기술을 지원
(S_SATA3_3 커넥터가 eSATA 포트와 공유됨)
(S_SATA3_2 커넥터가 Ultra M.2 Socket 포트와 공유됨)
- * RAID 는 SATA3_0 ~ SATA3_5 포트에서만 지원됩니다.
- eSATA 커넥터 1 개, NCQ, AHCI 및 핫 플러그 지원
- 울트라 M.2 소켓 1 개, 최대 Gen3 4 개까지 (32 Gb/s) M.2 SATA3 6.0 Gb/s 모듈 및 M.2 PCI Express 모듈 지원

커넥터

- COM 포트 헤더 1 개
- TPM 헤더 1 개
- 전원 LED 헤더 1 개
- CPU 팬 커넥터 2 개 (1 x 4 핀, 1 x 3 핀)
- 새시 팬 커넥터 2 개 (1 x 4 핀, 1 x 3 핀) (스마트 팬 스피드 제어)
- 전원 팬 커넥터 1 개 (3 핀)
- 24 핀 ATX 전원 커넥터 1 개
- 8 핀 12V 전원 커넥터 1 개 (고밀도 전원 커넥터)
- HDD 세이버 커넥터 1 개
- PCIe 전원 커넥터 1 개
- 전면 패널 오디오 커넥터 1 개
- Thunderbolt AIC 커넥터 1 개
- USB 2.0 헤더 2 개 (USB 2.0 포트 4 개 지원) (ESD 보호 지원 (ASRock 폴 스파이크 보호))
- USB 3.0 헤더 1 개 (USB 3.0 포트 2 개 지원) (ESD 보호 (ASRock 폴 스파이크 보호))
- LED 탑재 Dr. Debug 1 개
- LED 탑재 전원 스위치 1 개
- LED 탑재 리셋 스위치 1 개
- BIOS 선택 스위치 1 개

BIOS 기능

- 다국어 GUI 지원 128Mb AMI UEFI Legal BIOS 2 개 (메인 BIOS 1 개 및 백업 BIOS 1 개)
- 보안 백업 UEFI 기술 지원
- ACPI 1.1 준수 웨이크 업 이벤트
- SMBIOS 2.3.1 지원
- CPU, DRAM, PCH 1.05V, PCH 1.5V 전압 다중 조정

하드웨어 모니터

- CPU/ 새시 온도 감지
- CPU/ 새시 / 전원 팬 타코미터
- CPU/ 새시 저소음 팬 (CPU 온도에 의한 새시 팬 속도 자동 조절)
- CPU/ 새시 팬 다중 속도 조절
- 전압 모니터링 : +12V, +5V, +3.3V, CPU 입력 전압 , CPU 내부 전압

OS

- Microsoft® Windows® 10 64 비트 / 8.1 32 비트 / 8.1 64 비트 / 8 32 비트 / 8 64 비트 / 7 32 비트 / 7 64 비트

인증

- FCC, CE, WHQL
- ErP/EuP 사용 가능 (ErP/EuP 사용 가능 전원공급장치 필요)

* 자세한 제품 정보에 대해서는 당사 웹사이트를 참조하십시오 : <http://www.asrock.com>



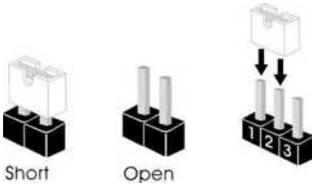
BIOS 설정을 조정하거나 Untied Overclocking Technology 를 적용하거나 타업체의 오버클로킹 도구를 사용하는 것을 포함하는 오버클로킹에는 어느 정도의 위험이 따른다는 것을 유념하십시오. 오버클로킹은 시스템 안정성에 영향을 주거나 심지어 시스템의 구성 요소와 장치에 손상을 입힐 수도 있습니다. 오버클로킹은 사용자 스스로 위험과 비용을 감수하고 해야 합니다. 당사는 오버클로킹에 의해 발생할 수 있는 손상에 대해서 책임이 없습니다.



제한 때문에 실제 메모리 크기는 Windows® 32 비트 운영체제 하의 시스템 사용을 위한 예비 메모리용 4GB 보다 더 적을 수 있습니다. Windows® 64 비트 운영체제에는 그러한 제한이 없습니다. ASRock XFast RAM 을 사용하여 Windows® 가 사용할 수 없는 메모리를 이용할 수 있습니다.

1.3 점퍼 설정

그림은 점퍼를 어떻게 설정하는지 보여줍니다. 점퍼 캡을 핀에 씌우면 점퍼가 단락 됩니다. 점퍼 캡을 핀에 씌우지 않으면 점퍼가 단선 됩니다. 그림은 3 핀 점퍼를 보여주며 핀 1 과 핀 2 는 점퍼 캡을 씌울 때 단락 됩니다.



Clear CMOS 점퍼
(CLRCMOS1)

(1 페이지, 20 번 항목 참조)



기본값



Clear CMOS

CLRCMOS1 을 사용하여 CMOS 에 저장된 데이터를 지울 수 있습니다. 시스템 파라미터를 지우고 기본 설정으로 초기화하려면 컴퓨터를 끄고 전원 코드를 전원공급장치에서 빼십시오. 15 초 동안 기다린 후 점퍼 캡을 사용하여 CLRCMOS1 의 핀 2 와 핀 3 을 5 초 동안 단락시키십시오. 그러나 BIOS 업데이트 직후에는 CMOS 를 삭제하지 마십시오. BIOS 업데이트를 완료한 직후 CMOS 를 지워야 할 경우, 우선 시스템을 부팅한 후 바이오스 업데이트를 종료한 다음 CMOS 지우기 작업을 해야 합니다. CMOS 배터리를 제거할 경우에 만 암호, 날짜, 시간, 사용자 기본 프로파일이 지워집니다.



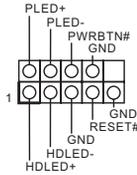
Clear CMOS 스위치는 Clear CMOS 점퍼와 동일한 기능을 갖고 있습니다.

1.4 온보드 헤더 및 커넥터



온보드 헤더와 커넥터는 점퍼가 아닙니다. 점퍼 캡을 온보드 헤더와 커넥터에 끼우지 마십시오. 점퍼 캡을 온보드 헤더와 커넥터에 끼우면 마더보드가 영구적으로 손상됩니다.

시스템 패널 헤더
(9 핀 PANEL1)
(1 페이지, 17 번 항목 참조)



새시의 전원 스위치, 리셋 스위치, 시스템 상태 표시등을 아래의 핀 할당에 따라 이 헤더에 연결합니다. 케이블을 연결하기 전에 양극 핀과 음극 핀을 기록합니다.



PWRBTN(전원 스위치):

새시 전면 패널의 전원 스위치에 연결합니다. 전원 스위치를 이용해 시스템을 끄는 방법을 구성할 수 있습니다.

RESET(리셋 스위치):

새시 전면 패널의 리셋 스위치에 연결합니다. 컴퓨터가 정지하고 정상적 재시작을 수행하지 못할 경우 리셋 스위치를 눌러 컴퓨터를 재시작합니다.

PLED(시스템 전원 LED):

새시 전면 패널의 전원 상태 표시등에 연결합니다. 시스템이 작동하고 있을 때는 LED가 켜져 있습니다. 시스템이 S1/S3 대기 상태에 있을 때는 LED가 계속 깜박입니다. 시스템이 S4 대기 상태 또는 전원 꺼짐(S5) 상태에 있을 때는 LED가 꺼져 있습니다.

HDLED(하드 드라이브 동작 LED):

새시 전면 패널의 하드 드라이브 동작 LED에 연결합니다. 하드 드라이브가 데이터를 읽거나 쓰고 있을 때 LED가 켜져 있습니다.

전면 패널 디자인은 새시별로 다를 수 있습니다. 전면 패널 모듈은 주로 전원 스위치, 리셋 스위치, 전원 LED, 하드 드라이브 동작 LED, 스피커 등으로 구성되어 있습니다. 새시 전면 패널 모듈을 이 헤더에 연결할 때 와이어 할당과 핀 할당이 정확히 일치하는지 확인합니다.

전원 LED 헤더
(3 핀 PLED1)
(1 페이지, 16 번 항목 참조)



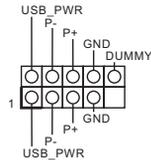
시스템 전원 상태를 나타내려면 새시 전원 LED를 이 헤더에 연결하십시오.

시리얼 ATA3 커넥터
(S_SATA3_0_1:
(1 페이지, 10 번 항목 참조)
(S_SATA3_2_3:
(1 페이지, 12 번 항목 참조)
(SATA3_0_3:
(1 페이지, 13 번 항목 참조)
(SATA3_1_4:
(1 페이지, 14 번 항목 참조)
(SATA3_2_5:
(1 페이지, 15 번 항목 참조)



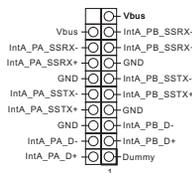
이들 열 개의 SATA3 커넥터는 최대 6.0 Gb/s 데이터 전송 속도를 제공하는 내부 저장장치용 SATA 데이터 케이블을 지원합니다. 후면 I/O의 eSATA 포트가 연결된 경우 내부 S_SATA3_3가 기능하지 않습니다. 울트라 M.2 소켓이 사용 중인 경우, 내부 S_SATA3_2가 작동하지 않습니다.
* RAID 는 SATA3_0 ~ SATA3_5 포트에서만 지원됩니다.

USB 2.0 헤더
(9 핀 USB5_6)
(1 페이지, 24 번 항목 참조)
(9 핀 USB7_8)
(1 페이지, 23 번 항목 참조)



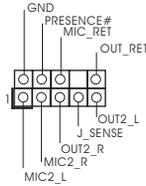
I/O 패널에 USB 2.0 포트 네 개가 탑재되어 있을 뿐 아니라 마더보드에 헤더 두 개가 탑재되어 있습니다. 각 USB2.0 헤더는 포트 두 개를 지원할 수 있습니다.

USB 3.0 헤더
(19 핀 USB3_5_6)
(1 페이지, 8 번 항목 참조)



I/O 패널에 USB 3.0 포트 네 개가 탑재되어 있을 뿐 아니라 마더보드에 헤더 한 개가 탑재되어 있습니다. 각 USB3.0 헤더는 포트 두 개를 지원할 수 있습니다.

전면 패널 오디오 헤더
(9 핀 HD_AUDIO1)
(1 페이지, 28 번 항목 참조)

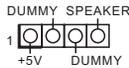


이 헤더는 오디오 장치를 전면 오디오 패널에 연결하는 데 사용됩니다.



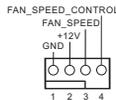
1. 고음질 오디오는 잭 감지를 지원하지만 올바르게 작동하려면 새시의 패널 와이어가 HDA 를 지원해야 합니다. 설명서 및 새시 설명서에 나와 있는 지침을 따라 시스템을 설치하십시오.
2. AC 97 오디오 패널을 사용할 경우 아래와 같은 절차를 따라 전면 패널 오디오 헤더에 설치하십시오:
 - A. Mic_IN (MIC) 를 MIC2_L 에 연결합니다.
 - B. Audio_R (RIN) 을 OUT2_R 에 연결하고 Audio_L (LIN) 을 OUT2_L 에 연결합니다.
 - C. 접지 (GND) 를 접지 (GND) 에 연결합니다.
 - D. MIC_RET 및 OUT_RET 는 HD 오디오 패널에만 사용됩니다. AC 97 오디오 패널용으로 연결할 필요가 없습니다.
 - E. 전면 마이크를 활성화하려면 Realtek 제어판에서 FrontMic 탭으로 가서 녹음 볼륨 을 조정합니다.

새시 스피커 헤더
(4 핀 SPEAKER1)
(1 페이지, 21 번 항목 참조)



새시 스피커를 이 헤더에 연결하십시오.

새시 및 전원 팬 커넥터
(4 핀 CHA_FAN1)
(1 페이지, 22 번 항목 참조)

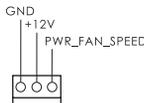


팬 케이블을 팬 커넥터에 연결하고 검은색 와이어를 접지핀에 연결하십시오. CHA_FAN 팬 속도는 UEFI 또는 A-Tuning 를 통하여 제어할 수 있습니다.

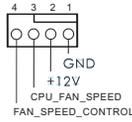
(3 핀 CHA_FAN2)
(1 페이지, 9 번 항목 참조)



(3 핀 PWR_FAN1)
(1 페이지, 30 번 항목 참조)

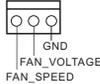


CPU 팬 커넥터
(4 핀 CPU_FAN1)
(1 페이지, 4 번 항목 참조)

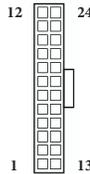


이 마더보드에는 4 핀 CPU 팬 (저소음 팬) 커넥터가 탑재되어 있습니다. 3 핀 CPU 팬을 연결하려는 경우 핀 1-3 에 연결하십시오.

(3 핀 CPU_FAN2)
(1 페이지, 5 번 항목 참조)

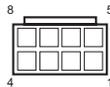


ATX 전원 커넥터
(24 핀 ATXPWR1)
(1 페이지, 7 번 항목 참조)



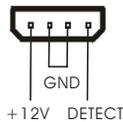
이 마더보드에는 24 핀 ATX 전원 커넥터가 탑재되어 있습니다. 20 핀 ATX 전원공급장치를 사용하려면 핀 1 과 핀 13 을 따라 연결하십시오.

ATX 12V 전원 커넥터
(8 핀 ATX12V1)
(1 페이지, 2 번 항목 참조)



이 마더보드에는 8 핀 ATX 12V 전원 커넥터가 탑재되어 있습니다. 4 핀 ATX 전원공급장치를 사용하려면 핀 1 과 핀 5 을 따라 연결하십시오.

PCIe 전원 커넥터
(4 핀 PCIe_PWR1)
(1 페이지, 27 번 항목 참조)



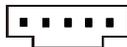
3 개 이상의 그래픽 카드가 설치되어 있을 때 4 핀 몰렉스 전원 케이블을 이 커넥터에 연결하십시오.

HDD 세이버 커넥터
(4 핀 SATA_PWR_1)
(1 페이지, 11 번 항목 참조)



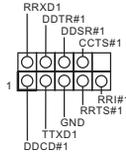
HDD 의 전원 상태를 관리하려면 HDD 세이버 케이블을 이 커넥터에 연결하십시오.

Thunderbolt AIC 커넥터
(5 핀 TBT1)
(1 페이지, 26 번 항목 참조)



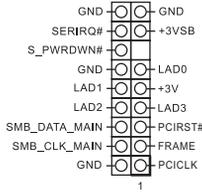
Thunderbolt™ 확장 카드 (AIC) 를 설치할 때 5 핀 신호 케이블 (GPIO 케이블) 을 이 커넥터에 연결하십시오.

시리얼 포트 헤더
(9 핀 COM1)
(1 페이지, 25 번 항목 참조)



이 헤더는 시리얼 포트 모듈을 지원합니다.

TPM 헤더
(17 핀 TPMS1)
(1 페이지, 6 번 항목 참조)



이 커넥터는 키, 디지털 인증서, 암호 및 데이터를 안전하게 보관할 수 있는 TPM(Trusted Platform Module) 시스템을 지원합니다. TPM 시스템은 네트워크 보안을 강화하고, 디지털 신원을 보호하며 플랫폼 무결성을 유지합니다.

1.5 스마트 스위치

마더보드에는 스마트 스위치 네 개가 탑재되어 있습니다: 전원 스위치, 리셋 스위치, CMOS 초기화 스위치 및 BIOS 선택 스위치 한 개. 이 스위치들로 시스템을 빨리 켜고 끄거나 시스템을 리셋하거나 CMOS 값을 지우거나 다른 BIOS로 부팅할 수 있습니다.

전원 스위치
(PWRBTN)
(1 페이지, 18 번 항목 참조)



전원 스위치로 시스템을 빨리 켜거나 끌 수 있습니다.

리셋 스위치
(RSTBTN)
(1 페이지, 19 번 항목 참조)



리셋 스위치로 시스템을 빨리 리셋할 수 있습니다.

CMOS 지우기 스위치
(CLRBTN)
(3 페이지, 15 번 항목 참조)



CMOS 지우기 스위치로 CMOS 값을 빨리 지울 수 있습니다.



이 기능은 컴퓨터를 끄고 전원 플러그를 빼는 경우에만 작동합니다.

BIOS 선택 스위치
(BIOS_SEL1)
(1 페이지, 29 번 항목 참조)



BIOS 선택 스위치로 시스템을 BIOS A 또는 BIOS B에서 부팅할 수 있습니다.



이 마더보드는 두 개의 BIOS 칩, 즉 일차 BIOS (BIOS_A) 와 보조 BIOS (BIOS_B) 를 탑재하여 시스템의 안전 및 안정성을 더욱 강화했습니다. 평소엔 시스템은 일차 BIOS로 동작합니다. 그러나 일차 BIOS가 손상될 경우 BIOS 선택 스위치를 B 위치로 설정하면 다음에 시스템을 부팅할 때 보조 BIOS가 동작합니다. 그런 다음 UEFI Setup Utility에서 보안 백업 UEFI를 사용하여 BIOS 파일 실행본을 일차 BIOS에 복사하여 정상적 시스템 작동을 유지합니다. 안전을 위해서, 사용자가 백업 BIOS를 수동으로 업데이트하는 것이 금지되어 있습니다. 사용자는 BIOS LED (BIOS_A_LED 또는 BIOS_B_LED)를 참조하여 현재 어떤 BIOS가 작동 중인지 알 수 있습니다.

1 はじめに

ASRock Fatal1ty X99M Killer Series マザーボードをお買い上げいただきまして誠にありがとうございます。ASRock Fatal1ty X99M Killer Series マザーボードは、ASRock の一貫した厳格な品質管理の下で製造された信頼性の高いマザーボードです。ASRock の品質と耐久性の取り組みに準拠した堅牢な設計を持つ、優れたパフォーマンスを提供します。



マザーボードの仕様と BIOS ソフトウェアは更新されることがあるため、このマニュアルの内容は予告なしに変更することがあります。このマニュアルの内容に変更があった場合には、更新されたバージョンは、予告なくアスロックのウェブサイトから入手できるようになります。このマザーボードに関する技術的なサポートが必要な場合には、ご使用のモデルについての詳細情報を、当社のウェブサイトで参照ください。アスロックのウェブサイトでは、最新の VGA カードおよび CPU サポート一覧もご覧になれます。アスロックウェブサイト <http://www.asrock.com>。

1.1 パッケージの内容

- ASRock Fatal1ty X99M Killer Series マザーボード(マイクロ ATX フォームファクター)
- ASRock Fatal1ty X99M Killer Series クイックインストールガイド
- ASRock Fatal1ty X99M Killer Series サポート CD
- 1 x I/O パネルシールド
- 1 x ASRock SLI_Bridge カード
- 2 x シリアル ATA (SATA) データケーブル(オプション)
- 1 x HDD セーバーケーブル
- 1 x Ultra M.2 ソケット用ねじ

1.2 仕様

- プラットフォーム**
- ・ マイクロ ATX フォームファクター
 - ・ 高密度ガラス繊維 PCB

- CPU**
- ・ LGA 2011-3 ソケット用 Intel® Core™ i7 および Xeon® 18-Core プロセッサファミリーに対応
 - ・ デジタル電源設計
 - ・ 12 電源フェーズ設計
 - ・ Intel® ターボブースト 2.0 テクノロジーをサポート
 - ・ Untied Overclocking をサポート

- チップセット**
- ・ Intel® X99

- メモリ**
- ・ クオッドチャネル DDR4 メモリ技術
 - ・ 4 x DDR4 DIMM スロット
 - ・ DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/2133/ 1866/1600/1333/1066 ノン ECC、アンバッファードメモリに対応
- * 詳細については、ASRock ウェブサイトのメモリーサポート一覧を参照してください。(http://www.asrock.com/)
- ・ ノン ECC RDIMM (レジスタード DIMM) に対応
 - ・ LGA 2011-3 ソケット内の Intel® Xeon® プロセッサ E5 シリーズで DDR4 ECC、アンバッファードメモリ / RDIMM に対応
 - ・ システムメモリの最大容量: 64GB (注意を参照)
 - ・ Intel® エクストリームメモリプロファイル(XMP) 2.0 をサポート
 - ・ DIMM スロットに 15μ ゴールドコンタクトを採用

- 拡張スロット**
- ・ 2 x PCI Express 3.0 x16 スロット (PCIE1 @ 16 倍モード、PCIE2 @ 16 倍モード)
- * 28 レーンある CPU を取り付けると、PCIE1/PCIE2 は x16/x8 で動作します。
- ・ 1 x PCI Express 2.0 x16 スロット (PCIE3: 4 倍モード)
 - ・ AMD Quad CrossFireX™ および CrossFireX™ に対応
 - ・ NVIDIA® Quad SLI™ および SLI™ に対応
 - ・ VGA PCIe スロットに 15μ ゴールドコンタクトを採用 (PCIE1 および PCIE2)

オーディオ

- 7.1 CH HD オーディオ、コンテンツプロテクション付き (Realtek ALC1150 オーディオコーデック)
- プレミアム・ブルーレイ・オーディオ・サポート
- サージ保護に対応 (ASRock 完全スパイク保護)
- Purity Sound™ 2 に対応
 - ニチコン製ファインゴールドシリーズオーディオコンデンサ
 - SN 比 115dB の DAC (差動アンプ搭載)
 - TI® NE5532 プレミアムヘッドセットアンプ (最大 600 Ohms までのヘッドセットに対応)
 - ダイレクトドライブテクノロジー
 - EMI シールドカバー
 - PCB 絶縁シールド
- DTS 接続をサポート

LAN

- 1 x Intel® I218V (ギガビット LAN PHY 10/100/1000 Mb/秒)
- 1 x Qualcomm® Atheros® Killer™ E2200 シリーズ (PCIe x1 ギガビット LAN 10/100/1000 Mb/s)
- Qualcomm® Atheros® セキュリティ・ウェイク・オン・インターネット・テクノロジーをサポート (Qualcomm® Atheros® Killer™ E2200 シリーズ)
- ウェイクオンランをサポート
- 雷 / 静電気放電 (ESD) 保護に対応 (ASRock 完全スパイク保護)
- エネルギー効率のよいイーサネット 802.3az をサポート
- PXE をサポート

リアパネル I/O

- 1 x PS/2 マウス / キーボードポート
- 1 x 光 SPDIF 出力ポート
- 1 x eSATA コネクタ
- 3 x USB 2.0 ポート (静電気放電 (ESD) 保護に対応 (ASRock 完全スパイク保護))
- 1 x Fatal!ty マウスポート (USB 2.0) (静電気放電 (ESD) 保護に対応 (ASRock 完全スパイク保護))
- 4 x USB 3.0 ポート (静電気放電 (ESD) 保護に対応 (ASRock 完全スパイク保護))
- LED 付き 2 x RJ-45 LAN ポート (ACT/LINK LED と SPEED LED)
- 1 x CMOS クリアスイッチ
- HD オーディオジャック: リアスピーカー / センター / バス / ラインイン / フロントスピーカー / マイク

ストレージ

- 10 x SATA3 6.0 Gb/s コネクタ、RAID (RAID 0、RAID 1、RAID 5、RAID 10、Intel ラピッド・ストレージ・テクノロジー 13、および)、NCQ、AHCI、ホットプラグ機能、および、ASRock HDD セーバーテクノロジーに対応
(S_SATA3_3 コネクタは eSATA ポートと共有)
(S_SATA3_2 コネクタは Ultra M.2 Socket ポートと共有)
- * RAID に対応するのは SATA3_0 ~ SATA3_5 ポート上だけです。
- 1 x eSATA コネクタ、NCQ、AHCI、「ホットプラグ」機能に対応
- 1 x ウルトラ M.2 ソケット、M.2 SATA3 6.0 Gb/s モジュールおよび、最大 Gen3 x4 (32 Gb/s) までの M.2 PCI Express モジュールに対応

コネクタ

- 1 x COM ポートヘッダー
- 1 x TPM ヘッダー
- 1 x 電源 LED ヘッダー
- 2 x CPU ファンコネクタ (1 x 4 ピン、1 x 3 ピン)
- 2 x シャーシファンコネクタ (1 x 4 ピン、1 x 3 ピン) (スマートファン速度制御)
- 1 x 電源ファンコネクタ (3 ピン)
- 1 x 24 ピン ATX 電源コネクタ
- 1 x 8 ピン 12V 電源コネクタ (高密度電源コネクタ)
- 1 x HDD セーバーコネクタ
- 1 x PCIe 電源コネクタ
- 1 x 前面パネルオーディオコネクタ
- 1 x Thunderbolt AIC コネクタ
- 2 x USB 2.0 ヘッダー (4 個の USB 2.0 ポートに対応) (静電気放電 (ESD) 保護に対応 (ASRock 完全スパイク保護))
- 1 x USB 3.0 ヘッダー (2 個の USB 3.0 ポートに対応) (静電気放電 (ESD) 保護に対応 (ASRock 完全スパイク保護))
- 1 x Dr. Debug、LED 付き
- 1 x 電源スイッチ、LED 付き
- 1 x リセットスイッチ、LED 付き
- 1 x BIOS 選択スイッチ

BIOS 機能

- 2 x 128Mb AMI UEFI Legal BIOS、多言語 GUI サポート (1 x メイン BIOS と 1 x バックアップ BIOS) 付き
- セキュアバックアップ UEFI テクノロジーに対応
- ACPI 1.1 準拠ウェイクアップイベント

- SMBIOS 2.3.1 をサポート
- CPU、DRAM、PCH 1.05V、PCH 1.5V、VPPM 複数電圧設定

ハードウェア モニター

- CPU/ シャーシ温度センシング
- CPU/ シャーシ / 電源ファンタコメーター
- CPU/ シャーシクワイエットファン(CPU 温度に従ってシャーシファン速度を自動調整)
- CPU/ シャーシファンマルチ速度制御
- 電圧監視: +12V、+5V、+3.3V、CPU 入力電圧、CPU 内部電圧

OS

- Microsoft® Windows® 10 64 ビット / 8.1 32 ビット / 8.1 64 ビット / 8 32 ビット / 8 64 ビット / 7 32 ビット / 7 64 ビット

認証

- FCC、CE、WHQL
- ErP/EuP Ready (ErP/EuP ready 電源が必要です)

* 商品詳細については、当社ウェブサイトをご覧ください。 <http://www.asrock.com>



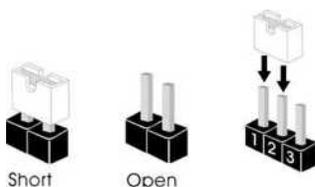
BIOS 設定の調整、アンタイドオーバークロックテクノロジーの適用、サードパーティのオーバークロックツールの使用などを含む、オーバークロックには、一定のリスクを伴いますのでご注意ください。オーバークロックするとシステムが不安定になったり、システムのコンポーネントやデバイスが破損することがあります。ご自分の責任で行ってください。弊社では、オーバークロックによる破損の責任は負いかねますのでご了承ください。



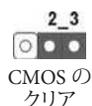
Windows® 32 ビットオペレーティングシステムでの、システム使用に割り当てられた実際のメモリサイズは制限のため、4GB 未満のことがあります。Windows® 64 ビットのオペレーティングシステムでは、そのような制限はありません。Windows® では使えないメモリを使用するために、ASRock XFast RAMを使用することができます。

1.3 ジャンパー設定

このイラストは、ジャンパーの設定方法を示しています。ジャンパーキャップがピンに被さっていると、ジャンパーは「ショート」です。ジャンパーキャップがピンに被さっていない場合には、ジャンパーは「オープン」です。この図は3ピンのジャンパーを表し、ジャンパーキャップがピン1とピン2に被さっているとき、これらのピンは「ショート」です。



CMOS クリアジャンパー
(CLRCMOS1)
(p.1、No. 20 参照)



CLRCMOS1 は、CMOS のデータをクリアすることができます。クリアして、デフォルト設定にシステムパラメーターをリセットするには、コンピューターの電源を切り、電源から電源コードを抜いてください。15 秒待ってから、CLRCMOS1 のピン2とピン3をジャンパーキャップを使って5秒間ショートします。ただし、BIOSをアップデートした直後に、CMOSをクリアしないでください。BIOSをアップデート後、CMOSをクリアする必要がある場合は、最初にシステムを起動し、それからCMOSクリアアクションを行う前にシャットダウンしてください。パスワード、日付、時間、ユーザーのデフォルトプロファイルは、CMOSの電池を取り外した場合のみ、消去されることにご注意ください。



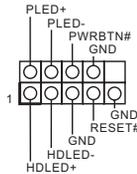
CMOS クリアスイッチは、CMOS クリアジャンパーと同じ機能です。

1.4 オンボードのヘッダーとコネクタ



オンボードヘッダーとコネクタはジャンパーではありません。これらヘッダーとコネクタにはジャンパーキャップを被せないでください。ヘッダーおよびコネクタにジャンパーキャップを被せると、マザーボードに永久損傷が起ることがあります。

システムパネルヘッダー
(9ピンパネル 1)
(p.1、No. 17 参照)



電源スイッチを接続し、スイッチをリセットし、下記のピン割り当てに従って、シャーシのシステムステータス表示ランプをこのヘッダーにセットします。ケーブルを接続する際には、ピンの+と-に気をつけてください。



PWRBTN(電源スイッチ):

シャーシ前面パネルの電源スイッチに接続してください。電源スイッチを使用して、システムをオフにする方法を設定できます。

RESET(リセットスイッチ):

シャーシ前面パネルのリセットスイッチに接続してください。コンピューターがフリーズしたり、通常の再起動を実行できない場合には、リセットスイッチを押して、コンピューターを再起動します。

PLED(システム電源 LED):

シャーシ前面パネルの電源ステータスインジケータに接続してください。システム稼働中は、LED が点灯します。システムが S1/S3 スリープ状態の場合には、LED は点滅を続けます。システムが S4 スリープ状態または電源オフ(S5)のときには、LED はオフです。

HDLED(ハードドライブアクティビティ LED):

シャーシ前面パネルのハードドライブアクティビティ LED に接続してください。ハードドライブのデータを読み取りまたは書き込み中に、LED はオンになります。

前面パネルデザインは、シャーシによって異なることがあります。前面パネルモジュールは、主に電源スイッチ、リセットスイッチ、電源 LED、ハードドライブアクティビティ LED、スピーカーなどから構成されます。シャーシの前面パネルモジュールとこのヘッダーを接続する場合には、配線の割り当てと、ピンの割り当てが正しく合致していることを確かめてください。

電源 LED ヘッダー
(3ピン PLED1)
(p.1、No. 16 参照)



システムの電源ステータスを表示するために、シャーシ電源 LED をこのヘッダーに接続してください。

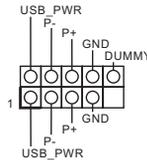
シリアル ATA3 コネクタ

—
(S_SATA3_0_1:
p.1、No. 10 参照)
(S_SATA3_2_3:
p.1、No. 12 参照)
(SATA3_0_3:
p.1、No. 13 参照)
(SATA3_1_4:
p.1、No. 14 参照)
(SATA3_2_5:
p.1、No. 15 参照)



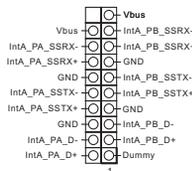
これら 10 個の SATA3 コネクタは、最高 6.0 Gb/s のデータ転送速度で内部ストレージデバイス用の SATA データケーブルに対応します。eSATA ポートが背面 I/O に接続されている場合は、内部 S_SATA3_3 は機能しません。ウルトラ M.2 ソケットが使用されている場合は、内部 S_SATA3_2 は機能しません。
* RAID に対応するのは SATA3_0 ~ SATA3_5 ポート上だけです。

USB 2.0 ヘッダー
(9ピン USB5_6)
(p.1、No. 24 参照)
(9ピン USB7_8)
(p.1、No. 23 参照)



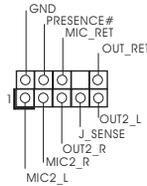
I/O パネルの 4 つの USB 2.0 ポートに加えて、このマザーボードには 2 つのヘッダーがあります。各 USB 2.0 ヘッダーは、2 つのポートをサポートできます。

USB 3.0 ヘッダー
(19ピン USB3_5_6)
(p.1、No. 8 参照)



I/O パネルの 4 つの USB 3.0 ポートに加えて、このマザーボードには 1 つのヘッダーがあります。各 USB 3.0 ヘッダーは、2 つのポートをサポートできます。

フロントパネルオーディオヘッダー
(9ピン HD_AUDIO1)
(p.1, No. 28 参照)

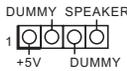


このヘッダーは、フロントオーディオパネルにオーディオデバイスを接続するためのものです。



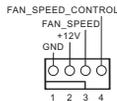
1. ハイディフィニションオーディオはジャックセンシングをサポートしていますが、正しく機能するためには、シャーシのパネルワイヤーが HDA をサポートしている必要があります。お使いのシステムを取り付けるには、当社のマニュアルおよびシャーシのマニュアルの指示に従ってください。
2. AC'97 オーディオパネルを使用する場合には、次のステップで、前面パネルオーディオヘッダーに取り付けてください。
 - A. Mic_IN (MIC) を MIC2_L に接続します。
 - B. Audio_R (RIN) を OUT2_R に、Audio_L (LIN) を OUT2_L に接続します。
 - C. アース (GND) をアース (GND) に接続します。
 - D. MIC_RET と OUT_RET は、HD オーディオパネル専用です。AC'97 オーディオパネルではこれらを接続する必要はありません。
 - E. フロントマイクを有効にするには、Realtek コントロールパネルの「FrontMic」タブで、「録音音量」を調整してください。

シャーシスピーカーヘッダー
(4ピン SPEAKER1)
(p.1, No. 21 参照)



シャーシスピーカーはこのヘッダーに接続してください。

シャーシと電源ファンコネクタ
(4ピン CHA_FAN1)
(p.1, No. 22 参照)

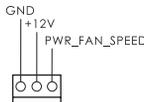


ファンケーブルはファンコネクタに接続し、黒線とアースピンを合わせてください。CHA_FAN ファン速度は、UEFIまたはA-Tuningを通して制御可能です。

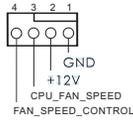
(3ピン CHA_FAN2)
(p.1, No. 9 参照)



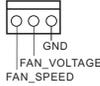
(3ピン PWR_FAN1)
(p.1, No. 30 参照)



CPU ファンコネクター
(4ピン CPU_FAN1)
(p.1、No. 4 参照)

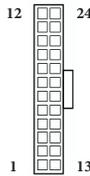


(3ピン CPU_FAN2)
(p.1、No. 5 参照)



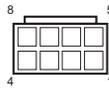
このマザーボードは 4ピン CPU ファン(静音ファン)コネクターを提供します。3ピンの CPU ファンを接続する場合には、ピン 1-3 に接続してください。

ATX 電源コネクター
(24ピン ATXPWR1)
(p.1、No. 7 参照)



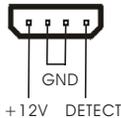
このマザーボードは 24ピン ATX 電源コネクターを提供します。20ピンの ATX 電源を使用するには、ピン 1 と 13 番に合わせて接続してください。

ATX12V 電源コネクター
(8ピン ATX12V1)
(p.1、No. 2 参照)



このマザーボードは 8ピン ATX12V 電源コネクターを提供します。4ピンの ATX 電源を使用するには、ピン 1 と 5 番に合わせて接続してください。

PCIe 電源コネクタ
(4ピン PCIE_PWR1)
(p.1、No. 27 参照)



3枚以上のグラフィックスカードを取り付ける場合は、4ピンモレックス電源ケーブルをこのコネクタに接続してください。

HDD セーバーコネクタ
(4ピン SATA_PWR1)
(p.1、No. 11 参照)



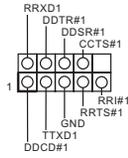
HDD セーバーケーブルをこのコネクタに接続して HDD の電源状態を管理します。

Thunderbolt AIC コネクタ
(5ピン TBT1)
(p.1、No. 26 参照)



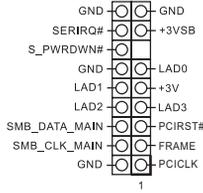
Thunderbolt™ アドインカード(AIC)を取り付ける場合は、5ピン信号ケーブル(GPIOケーブル)をこのコネクタに接続してください。

シリアルポートヘッダー
(9ピン COM1)
(p.1、No. 25 参照)



このヘッダーはシリアル
ポートモジュールをサ
ポートします。

TPM ヘッダー
(17ピン TPMS1)
(p.1、No. 6 参照)



このコネクタはトラステッドプ
ラットフォームモジュール(TPM)
システムをサポートし、鍵、デジ
タル証明書、パスワード、デー
タを安全に保管することができま
す。TPM システムはまた、ネット
ワークセキュリティを高め、デジ
タル証明書を保護し、プラット
フォームの完全性を保証します。

1.5 スマートスイッチ

このマザーボードには4つのスマートスイッチが装備されています：電源スイッチ、リセットスイッチ、クリア CMOS スイッチ、および、BIOS 選択スイッチを使って、システムを素早くオン / オフにしたり、システムをリセット、CMOS 値をクリア、または、異なる BIOS から起動できます。

電源スイッチ
(PWRBTN)
(p.1、No. 18 参照)



電源スイッチで、システムを素早くオン / オフにできます。

リセットスイッチ
(RSTBTN)
(p.1、No. 19 参照)



リセットスイッチで、システムを素早くリセットできます。

クリア CMOS スイッチ
(CLRCBTN)
(p.3、No. 15 参照)



クリア CMOS スイッチで、CMOS 値を素早くクリアできます。



この機能が動作するのは、コンピュータの電源をオフにして、電源供給を切断了した場合だけです。

BIOS 選択スイッチ
(BIOS_SEL1)
(p.1、No. 29 参照)



BIOS 選択スイッチで、システムを BIOS A または BIOS B から起動できます。



このマザーボードは、一次 BIOS (BIOS_A) とバックアップ BIOS (BIOS_B) の2つの BIOS チップが搭載されています。これによって、システムの安全性と安定性が強化されました。通常、システムは一次 BIOS 上で動作します。しかしながら、一次 BIOS が破損した場合は、BIOS 選択スイッチを「B」に切り替えれば、次回システム起動の際には、バックアップ BIOS が動作します。その後で、BIOS セットアップユーティリティにある「セキュアバックアップ UEFI」を使って、BIOS ファイルの作業中のコピーを一次 BIOS に複製して、通常のシステム動作を確保します。安全のために、ユーザーはバックアップ BIOS を手動で更新することはできません。ユーザーは、BIOS LED (BIOS_A_LED または BIOS_B_LED) を参照して、現在、どちらの BIOS が有効かを確認できます。

1 简介

感谢您购买华擎 Fatal1ty X99M Killer 系列主板，这是按照华擎一贯严格质量控制标准生产的性能可靠的主板。它提供符合华擎质量和耐久性承诺的精良设计和卓越性能。



由于主板规格和 BIOS 软件可能已更新，因此，本手册的内容可能会随时更改，恕不另行通知。如果本手册有任何修改，则更新的版本将发布在华擎网站上，我们不会另外进行通知。如果您需要与此主板相关的技术支持，请访问我们的网站以具体了解所用型号的信息。您也可以在华擎网站上找到最新 VGA 卡和 CPU 支持列表。华擎网站 <http://www.asrock.com>

1.1 包装清单

- 华擎 Fatal1ty X99M Killer 系列主板（Micro ATX 规格尺寸）
- 华擎 Fatal1ty X99M Killer 系列快速安装指南
- 华擎 Fatal1ty X99M Killer 系列支持光盘
- 1 x I/O 面板
- 1 x 华擎 SLI_Bridge 卡
- 2 x 串行 ATA (SATA) 数据线（选购）
- 1 x HDD Saver 线
- 1 x 螺丝（供 Ultra M.2 插座使用）

1.2 规格

- 平台
- Micro ATX 规格尺寸
 - 高密度防潮纤维电路板

- CPU
- 支持适用于 LGA 2011-3 Socket 的 Intel® Core™ i7 and Xeon® 18 核处理器系列
 - 高性能数字供电
 - 12 相 CPU 供电设计
 - 支持 Intel® Turbo Boost 2.0 技术
 - 支持异步超频技术

- 芯片集
- Intel® X99

- 内存
- 支持 四通道 DDR4 内存技术
 - 4 x DDR4 DIMM 槽
 - 支持 DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/2133/1866/1600/1333/1066 非 ECC, 非缓冲内存
- * 请参阅华擎网站上的 Memory Support List (内存支持列表) 了解详情。(http://www.asrock.com/)
- 支持非 ECC RDIMM (寄存型 DIMM)
 - 通过 LGA 2011-3 Socket 中的 Intel® Xeon® 处理器 E5 系列, 支持 DDR4 ECC、非缓冲内存 /RDIMM
 - 支持系统内存容量: 64GB (见“注意”)
 - 支持 Intel® Extreme Memory Profile (XMP)2.0
 - 15μ 特厚镀金内存插槽

- 扩充槽
- 2 x PCI Express 3.0 x16 槽 (PCIE1 @ x16 模式; PCIE2 @ x16 模式)
- * 如果您安装 28 通道的 CPU, 则 PCIE1/PCIE2 将以 x16 / x8 运行。
- 1 x PCI Express 2.0 x16 插槽 (PCIE3: x4 模式)
 - 支持 AMD 4 路 CrossFireX™ 和 CrossFireX™ 技术
 - 支持 NVIDIA® 4 路 SLI™ 和 SLI™ 技术
 - 15μ 特厚镀金插槽 (PCIE1 和 PCIE2)

音频

- 具有内容保护功能的 7.1 CH 高清音频 (Realtek ALC1150 音频编解码器)
- 优质 Blu-ray 音频支持
- 支持防突波 (华擎全防护)
- 支持高保真 2 代
 - Nichicon 专业音效电容
 - 带差分放大器的 115dB 信噪比 / 模转换器
 - TI® NE5532 优质耳放 (支持最高 600 Ohm 耳机)
 - 直接驱动技术
 - EMI 屏蔽罩
 - PCB 隔离罩
- 支持 DTS 连接

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200 系列 (PCIe x1 Gigabit LAN 10/100/1000 Mb/s)
- 支持 Qualcomm® Atheros® 网上安全唤醒技术 (Qualcomm® Atheros® Killer™ E2200 系列上)
- 支持远程唤醒
- 支持防雷击 / 防 ESD 静电 (华擎全防护)
- 支持高效以太网 802.3az
- 支持 PXE

后面板 I/O

- 1 x PS/2 鼠标 / 键盘端口
- 1 x 光学 SPDIF 输出端口
- 1 x eSATA 接口
- 3 x USB 2.0 端口 (支持防 ESD 静电 (华擎全防护))
- 1 x Fatal1ty 鼠标端口 (USB 2.0, 支持防 ESD 静电 (华擎全防护))
- 4 x USB 3.0 端口 (支持防 ESD 静电 (华擎全防护))
- 2 x RJ-45 LAN 端口, 带 LED (ACT/LINK LED 和 SPEED LED)
- 1 x 清除 CMOS 开关
- 高清音频插孔: 后扬声器 / 中央 / 低音 / 线路输入 / 前扬声器 / 麦克风

存储

- 10 x SATA3 6.0 Gb/s 接口，支持 RAID（RAID 0、RAID 1、RAID 5、RAID 10、Intel Rapid Storage Technology 13）、NCQ、AHCI、热插拔和华擎硬盘管家（S_SATA3_3 接口与 eSATA 端口共用）
（S_SATA3_2 接口与 Ultra M.2 Socket 端口共用）
- * 仅在 SATA3_0 ~ SATA3_5 端口上支持 RAID。
- 1 x eSATA 接口，支持 NCQ、AHCI 和热插拔
- 1 x Ultra M.2 Socket，支持 M.2 SATA3 6.0 Gb/s 模块和 M.2 PCI Express 模块，最长达 Gen3 x4 (32 Gb/s)

接口

- 1 x COM 端口接头
- 1 x TPM 接脚
- 1 x 电源 LED 接头
- 2 x CPU 风扇接口（1 x 4 针，1 x 3 针）
- 2 x 机箱风扇接口（1 x 4 针，1 x 3 针）（智能风扇速度控制）
- 1 x 电源风扇接口（3 针）
- 1 x 24 针 ATX 电源接口
- 1 x 8 针 12V 电源接口（高密度电源接口）
- 1 x 硬盘管家接口
- 1 x PCIe 电源接口
- 1 x 前面板音频接口
- 1 x 雷电口接针
- 2 x USB 2.0 接脚（支持 4 个 USB 2.0 端口，支持防 ESD 静电（华擎全防护））
- 1 x USB 3.0 接脚（支持 2 个 USB 3.0 端口，支持防 ESD 静电（华擎全防护））
- 1 x Dr. Debug（调试工具），带 LED
- 1 x 电源开关，带 LED
- 1 x 重置开关，带 LED
- 1 x BIOS 选择开关

BIOS 功能特点

- 2 x 128Mb AMI UEFI Legal BIOS，具有多语言 GUI 支持（1 x 主 BIOS 和 1 x 备份 BIOS）
- 支持双核 UEFI 技术
- ACPI 1.1 兼容唤醒事件
- SMBIOS 2.3.1 支持
- CPU、DRAM、PCH 1.05V、PCH 1.5V、VPPM 电压多次调整（Voltage Multi-adjustment）

硬件监控

- CPU/ 机箱温度感测
- CPU/ 机箱 / 电源风扇转速计
- CPU/ 机箱静音风扇（根据 CPU 温度自动调整机箱风扇速度）
- CPU/ 机箱风扇多种速度控制
- 电压监控：+12V、+5V、+3.3V、CPU 输入电压、CPU 内部电压

操作系统

- Microsoft® Windows® 10 64-bit / 8.1 32-bit / 8.1 64-bit / 8 32-bit / 8 64-bit / 7 32-bit / 7 64-bit

认证

- FCC、CE、WHQL
- ErP/EuP 支持（需要支持 ErP/EuP 的电源）

* 有关详细产品信息，请访问我们的网站：<http://www.asrock.com>



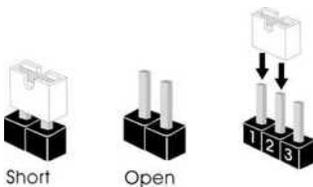
须认识到超频会有一定风险，包括调整 BIOS 设置，应用“自由超频技术”，或使用第三方超频工具。超频可能会影响到系统的稳定性，甚至对系统的组件和设备造成损坏。执行这项工作您应自担风险和自己承担费用。我们对由于超频而造成的损坏概不负责。



由于限制原因，实际内存容量可能会小于 4GB，以保留给 Windows® 32-bit 操作系统下的系统使用。Windows® 64-bit 操作系统没有此类限制。您可以使用华擎 XFast RAM 来利用 Windows® 不能使用的内存。

1.3 跳线设置

此图显示如何设置跳线。将跳线帽装到这些针脚上时，跳线“短接”。如果这些针脚上没有装跳线帽，跳线“开路”。此图显示 3 针跳线，当跳线帽装在针脚 1 和针脚 2 上，它们“短接”。



清除 CMOS 跳线

(CLR CMOS1)

(见第 1 页，第 20 个)



默认



清除 CMOS

CLR CMOS1 允许您清除 CMOS 中的数据。要清除和重置系统参数到默认设置，请关闭计算机，从电源上拔下电源线插头。等候 15 秒后，使用跳线帽将 CLR CMOS1 上的针脚 2 和针脚 3 短接 5 秒。但是，请勿在更新 BIOS 后立即清除 CMOS。如果您需要在刚完成 BIOS 更新后清除 CMOS，则必须先启动系统，并在关闭后再执行清除 CMOS 操作。请注意，密码、日期、时间和用户默认配置文件只在卸下 CMOS 电池后才会被清除。



清除 CMOS 开关具有与清除 CMOS 跳线相同的功能。

1.4 板载接脚和接口

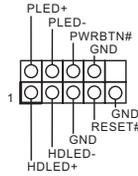


板载接脚和接口不是跳线。不要将跳线帽装到这些接脚和接口上。将跳线帽装到这些接脚和接口上将会对主板造成永久性损坏。

系统面板接脚

(9 针 PANEL1)

(见第 1 页, 第 17 个)



按照下面的针脚分配，将机箱上的电源开关、重置开关和系统状态指示灯连接到此接脚。在连接线缆前请记下正负针脚。



PWRBTN (电源开关) :

连接到机箱前面板上的电源开关。您可以配置使用电源开关关闭系统的方式。

RESET (重置开关) :

连接到机箱前面板上的重置开关。如果计算机死机，无法执行正常重新启动，按重置开关重新启动计算机。

PLED (系统电源 LED) :

连接到机箱前面板上的电源状态指示灯。系统操作操作时，此 LED 亮起。系统处在 S1/S3 睡眠状态时，此 LED 闪烁。系统处在 S4 睡眠状态或关机 (S5) 时，此 LED 熄灭。

HDLED (硬盘活动 LED) :

连接到机箱前面板上的硬盘活动 LED 指示灯。硬盘正在读取或写入数据时，此 LED 亮起。

前面板设计根据机箱不同而有所差异。前面板模块主要包括电源开关、重置开关、电源 LED、硬盘活动 LED 指示灯、扬声器等。将机箱前面板模块连接到此接脚时，确保连线分配和针脚分配正确匹配。

电源 LED 接脚

(3 针 PLED1)

(见第 1 页, 第 16 个)



请将机箱电源 LED 连接到此接脚以指示系统电源状态。

串行 ATA3 接口

(S_SATA3_0_1:

见第 1 页, 第 10 个)

(S_SATA3_2_3:

见第 1 页, 第 12 个)

(SATA3_0_3:

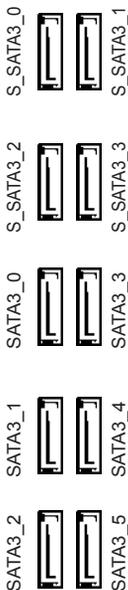
见第 1 页, 第 13 个)

(SATA3_1_4:

见第 1 页, 第 14 个)

(SATA3_2_5:

见第 1 页, 第 15 个)



这十个 SATA3 接口支持最高 6.0 Gb/s 数据传输速率的内部存储设备的 SATA 数据线。如果后面 I/O 上的 eSATA 端口已连接, 则内部 S_SATA3_3 将不工作。如果 Ultra M.2 Socket 已被占用, 内部 S_SATA3_2 将不工作。
* 仅在 SATA3_0 ~ SATA3_5 端口上支持 RAID。

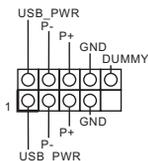
USB 2.0 接脚

(9 针 USB5_6)

(见第 1 页, 第 24 个)

(9 针 USB7_8)

(见第 1 页, 第 23 个)

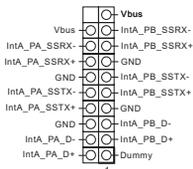


除 I/O 面板上的四个 USB 2.0 端口外, 此主板上还有两个接脚。每个 USB 2.0 接脚可以支持两个端口。

USB 3.0 接脚

(19 针 USB3_5_6)

(见第 1 页, 第 8 个)

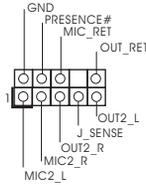


除 I/O 面板上的四个 USB 3.0 端口外, 此主板上还有一个接脚。每个 USB 3.0 接脚可以支持两个端口。

前面板音频接脚

(9 针 HD_AUDIO1)

(见第 1 页, 第 28 个)



此接脚用于将音频设备连接到前音频面板。

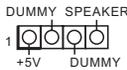


1. 高清音频支持插孔感测, 但机箱上的面板连线必须支持 HDA 才能正常工作。请按照我们的手册和机箱手册的说明安装系统。
2. 如果您使用 AC' 97 音频面板, 请按照以下步骤将它安装到前面板音频接脚:
 - A. 将 Mic_IN (MIC) 连接到 MIC2_L。
 - B. 将 Audio_R (RIN) 连接到 OUT2_R, 将 Audio_L (LIN) 连接到 OUT2_L。
 - C. 将接地端 (GND) 连接到接地端 (GND)。
 - D. MIC_RET 和 OUT_RET 只用于高清音频面板。您不需要针对 AC' 97 音频面板连接它们。
 - E. 要启用前麦克风, 请转到 Realtek 控制面板上的“FrontMic” (前麦克风) 选项卡, 调整“Recording Volume” (录音音量)。

机箱扬声器接脚

(4 针 SPEAKER1)

见第 1 页, 第 21 个)

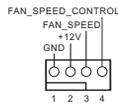


请将机箱扬声器连接到此接脚。

机箱和电源风扇接口

(4 针 CHA_FAN1)

见第 1 页, 第 22 个)



请将风扇线连接到风扇接口并使黑线匹配接地针脚。CHA_FAN 风扇速度可通过 UEFI 或 A-Tuning 来控制。

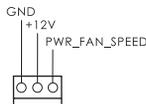
(3 针 CHA_FAN2)

见第 1 页, 第 9 个)



(3 针 PWR_FAN1)

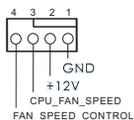
见第 1 页, 第 30 个)



CPU 风扇接口

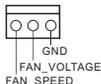
(4 针 CPU_FAN1)

(见第 1 页, 第 4 个)



(3 针 CPU_FAN2)

(见第 1 页, 第 5 个)

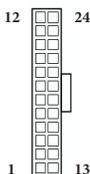


此主板提供 4 针 CPU 风扇 (静音风扇) 接口。如果您打算连接 3 针 CPU 风扇, 请将它连接到引脚 1-3。

ATX 电源接口

(24 针 ATXPWR1)

(见第 1 页, 第 7 个)

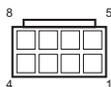


此主板提供 24 针 ATX 电源接口。要使用 20 针 ATX 电源, 请沿引脚 1 和引脚 13 插接它。

ATX 12V 电源接口

(8 针 ATX12V1)

(见第 1 页, 第 2 个)

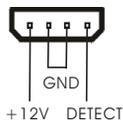


此主板提供 8 针 ATX 12V 电源接口。要使用 4 针 ATX 电源, 请沿引脚 1 和引脚 5 插接它。

PCIe 电源接口

(4- 针 PCIe_PWR1)

(见第 1 页, 第 27 个)



在安装三个以上的图像卡时, 请将 4 针 molex 电源线连接到此接口。

硬盘管家接口

(4- 针 SATA_PWR_1)

(见第 1 页, 第 11 个)



请将 HDD Saver 线连接到此接口, 以管理硬盘的电源状态。

雷电接口

(5- 针 TBT1)

(见第 1 页, 第 26 个)

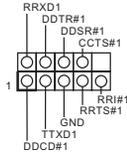


在安装 Thunderbolt™ 扩展卡 (AIC) 时, 请将 5- 针信号线 (GPIO 线) 连接到此接口。

串行端口接脚

(9 针 COM1)

(见第 1 页, 第 25 个)

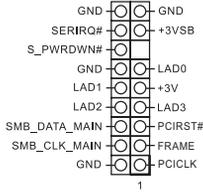


此接脚支持串行端口模块。

TPM 接脚

(17 针 TPMS1)

(见第 1 页, 第 6 个)



此接口支持 Trusted Platform Module (信任平台模块, TPM) 系统, 可以安全地存储密钥、数字证书、密码和数据。TPM 系统也可以帮助增强网络安全, 保护数字身份和确保平台完整性。

1.5 智能开关

此主板配有 4 个智能开关：电源开关、重启开关、清除 CMOS 开关和 BIOS 选择开关，允许用户快速开启 / 关闭系统、重启系统、清除 CMOS 值或从不同 BIOS 进行引导。

电源开关
(PWRBTN)
(见第 1 页，第 18 个)



电源开关允许用户快速打开 / 关闭系统。

重置开关
(RSTBTN)
(见第 1 页，第 19 个)



重置开关允许用户快速重置系统。

清除 CMOS 开关
(CLRCBTN)
(参见第 3 页，第 15 个)



清除 CMOS 开关允许用户快速清除 CMOS 值。



只有在关闭计算机并拔出电源插头后，才能使用此功能。

BIOS 选择开关
(BIOS_SEL1)
(见第 1 页，第 29 个)



BIOS 选择开关，允许系统从 BIOS A 或 BIOS B 中引导。



此主板集成有两个 BIOS 芯片，一个是主 BIOS (BIOS_A)，一个是备用 BIOS (BIOS_B)，可以增强系统的安全性和稳定性。通常，系统使用主 BIOS。但是，如果主 BIOS 损坏，只需将 BIOS 选择开关调到“B”，之后备份 BIOS 将执行下一次系统引导。之后，使用 UEFI Setup Utility 中的“双核 UEFI”将 BIOS 文件的有效副本复制到主 BIOS 以确保系统正常操作。由于安全原因，用户不能手动更新备份 BIOS。用户可以参考 BIOS LED (BIOS_A_LED 或 BIOS_B_LED) 来识别当前哪一个 BIOS 启动。

電子信息產品污染控制標示

依据中国发布的「电子信息产品污染控制管理办法」及 SJ/T 11364-2006「电子信息产品污染控制标示要求」，电子信息产品应进行标示，藉以向消费者揭露产品中含有的有毒有害物质或元素不致发生外泄或突变从而对环境造成污染或对人体、财产造成严重损害的期限。依上述规定，您可于本产品之印刷电路板上看见图一之标示。图一中之数字为产品之环保使用期限。由此可知此主板之环保使用期限为 10 年。



图一

有毒有害物質或元素的名稱及含量說明

若您欲了解此产品的有毒有害物质或元素的名称及含量说明，请参照以下表格及说明。

部件名称	有害物质或元素					
	铅 (Pb)	镉 (Cd)	汞 (Hg)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及电子组件	X	O	O	O	O	O
外部信号连接头及线材	X	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求，然该部件仍符合欧盟指令 2002/95/EC 的规范。

备注：此产品所标示之环保使用年限，系指在一般正常使用状况下。

1 簡介

感謝您購買華擎 Fatal1ty X99M Killer 系列主機板，本主機板經華擎嚴格品管製作，是一套讓人信賴的可靠產品。本產品採耐用設計所展現的優異效能，完全符合華擎對品質及耐用度的承諾。



由於主機板規格及 BIOS 軟體可能會更新，所以本文件內容如有變更，恕不另行通知。如本文件有任何修改，可至華擎網站逕行取得更新版本，不另外通知。若您需要與本主機板相關的技術支援，請上我們的網站瞭解有關您使用機型的特定資訊。您也可以到華擎網站找到最新的 VGA 卡及 CPU 支援清單。華擎網站
<http://www.asrock.com>

1.1 包裝內容

- 華擎 Fatal1ty X99M Killer 系列主機板 (Micro ATX 尺寸)
- 華擎 Fatal1ty X99M Killer 系列快速安裝指南
- 華擎 Fatal1ty X99M Killer 系列支援光碟
- 1 x I/O 面板外罩
- 1 x ASRock SLI_Bridge 卡
- 2 x Serial ATA (SATA) 資料纜線 (選用)
- 1 x HDD Saver 纜線
- 1 x 螺絲 (適用於 Ultra M.2 插座)

1.2 規格

平台

- Micro ATX 尺寸
- 高密度防潮纖維電路板

CPU

- 支援 LGA 2011-3 插座的 Intel® Core™ i7 與 Xeon® 18 核心處理器系列
- 數位電源設計 (Digi Power)
- 12 電源相位設計
- 支援 Intel® Turbo Boost 2.0 技術
- 支援非同步超頻技術

晶片組

- Intel® X99

記憶體

- 支援四通道 DDR4 記憶體技術
- 4 x DDR4 DIMM 插槽
- 支援 DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/2133/1866/1600/1333/1066 非 ECC、無緩衝記憶體
- * 如需更多資訊，請參閱華擎網站上的記憶體支援表 (<http://www.asrock.com/>)。
- 支援 non-ECC RDIMM (Registered DIMM)
- 支援 DDR4 ECC、un-buffered 記憶體 /RDIMM 及 LGA 2011-3 插座內安裝的 Intel® Xeon® 處理器 E5 系列
- 最大系統記憶體容量：64GB (請參閱「注意」)
- 支援 Intel® Extreme Memory Profile (XMP)2.0
- 15 μ 特厚鍍金插槽

擴充插槽

- 2 x PCI Express 3.0 x16 插槽 (PCIE1 @ x16 模式；PCIE2 @ x16 模式)
- * 若安裝 28 條通道的 CPU，PCIE1/PCIE2 將以 x16/x8 的速度執行。
- 1 x PCI Express 2.0 x16 插槽 (PCIE3: x4 模式)
- 支援 AMD Quad CrossFireX™ 和 CrossFireX™
- 支援 NVIDIA® Quad SLI™ 和 SLI™
- 15 μ 特厚鍍金插槽 (PCIE1 和 PCIE2)

音訊

- 7.1 CH HD 音訊含內容保護 (Realtek ALC1150 音訊轉碼器) 功能
- 高階藍光音訊支援
- 支援防突波 (華擎全防護)
- 支援天籟美聲二代
 - Nichicon Fine Gold 系列音效專用電容
 - 115dB SNR DAC 與差分放大器
 - TI* NE5532 高級耳機放大器 (支援最高可達 600 Ohms 的耳機)
 - 直接驅動技術
 - EMI 屏蔽蓋
 - PCB 隔離屏蔽
- 支援 DTS Connect

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200 系列 (PCIe x1 Gigabit LAN 10/100/1000 Mb/s)
- 支援 Qualcomm® Atheros® Security Wake On Internet 技術 (Qualcomm® Atheros® Killer™ E2200 系列)
- 支援網路喚醒
- 支援防雷擊 / 防 ESD 靜電 (華擎全防護)
- 支援 Energy Efficient Ethernet 802.3az
- 支援 PXE

後面板 I/O

- 1 x PS/2 滑鼠 / 鍵盤連接埠
- 1 x 光纖 SPDIF 輸出連接埠
- 1 x eSATA 接頭
- 3 x USB 2.0 連接埠 (支援防 ESD 靜電 (華擎全防護))
- 1 x Fatal1ty 滑鼠連接埠 (USB 2.0) (支援防 ESD 靜電 (華擎全防護))
- 4 x USB 3.0 連接埠 (支援防 ESD 靜電 (華擎全防護))
- 2 x RJ-45 LAN 連接埠, 含 LED (ACT/LINK LED 及 SPEED LED)
- 1 x 清除 CMOS 開關
- HD 音訊插孔: 後置喇叭 / 中置 / 低音 / 線路輸入 / 前置喇叭 / 麥克風

儲存裝置

- 10 x SATA3 6.0 Gb/s 接頭可支援 RAID (RAID 0、RAID 1、RAID 5、RAID 10、Intel 快速儲存技術 13)、NCQ、AHCI、熱插拔及華擎硬碟守護神等
(S_SATA3_3 接頭與 eSATA 連接埠共用)
(S_SATA3_2 接頭與 Ultra M.2 Socket 連接埠共用)
- * RAID 僅支援 SATA3_0 ~ SATA3_5 連接埠。
- 1 x eSATA 接頭，支援 NCQ、AHCI 及熱插拔
- 1 x Ultra M.2 插槽，支援 M.2 SATA3 6.0 Gb/s 模組與 M.2 PCI Express 模組，最高可達 Gen3 x4 (32 Gb/s)

接頭

- 1 x COM 連接埠排針
- 1 x TPM 排針
- 1 x 電源 LED 排針
- 2 x CPU 風扇接頭 (1 x 4-pin、1 x 3-pin)
- 2 x 機殼風扇接頭 (1 x 4-pin、1 x 3-pin) (智慧型風扇速度控制)
- 1 x 電源風扇接頭 (3-pin)
- 1 x 24 pin ATX 電源接頭
- 1 x 8 pin 12V 電源接頭 (高密度電源連接埠)
- 1 x 硬碟守護神連接埠
- 1 x PCIe 電源接頭
- 1 x 前面板音訊接頭
- 1 x Thunderbolt AIC 連接埠
- 2 x USB 2.0 排針 (支援 4 個 USB 2.0 連接埠) (支援防 ESD 靜電 (華擎全防護))
- 1 x USB 3.0 排針 (支援 2 個 USB 3.0 連接埠) (支援防 ESD 靜電 (華擎全防護))
- 1 x Dr. Debug，含 LED
- 1 x 電源開關，含 LED
- 1 x 重設開關，含 LED
- 1 x BIOS 選擇開關

BIOS 功能

- 2 x 128Mb AMI UEFI Legal BIOS，具備多國語言 GUI 支援 (1 x 主 BIOS and 1 x 備用 BIOS)
- 支援 Secure Backup UEFI 技術
- ACPI 1.1 符合喚醒自動開機
- 支援 SMBIOS 2.3.1
- CPU、DRAM、PCH 1.05V、PCH 1.5V、VPPM 電壓多重調整

硬體 監視器

- CPU / 機殼溫度感應
- CPU / 機殼 / 電源風扇轉速計
- CPU / 機殼靜音風扇 (依 CPU 溫度自動調整機殼風扇速度)
- CPU / 機殼風扇多重速度控制
- 電壓監控：+12V、+5V、+3.3V、CPU 輸入電壓、CPU 內部電壓

作業系統

- Microsoft® Windows® 10 64 位元 / 8.1 32 位元 / 8.1 64 位元 / 8 32 位元 / 8 64 位元 / 7 32 位元 / 7 64 位元

認證

- FCC、CE、WHQL
- ErP/EuP Ready (需具備 ErP/EuP ready 電源供應器)

* 如需產品詳細資訊，請上我們的網站：<http://www.asrock.com>



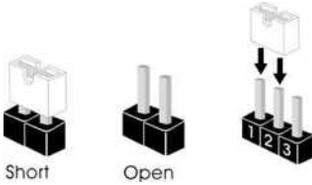
請務必理解，超頻可能產生某種程度的風險，其中包括調整 BIOS 中的設定、採用自由超頻技術或使用協力廠商的超頻工具。超頻可能會影響您系統的穩定性，或者甚至會對您系統的元件及裝置造成傷害。您應自行負擔超頻風險及成本。我們對於因超頻所造成的可能損害概不負責。



在 Windows® 32 位元作業系統下，因有保留供系統使用記憶體的限制，所以實際記憶體大小可能低於 4GB。Windows® 64 位元作業系統則沒有此類限制。您可使用華擎 XFast RAM 運用 Windows® 無法使用的記憶體。

1.3 跳線設定

圖例顯示設定跳線的方式。當跳線帽套在針腳上時，該跳線為「短路」。若沒有跳線帽套在針腳上，該跳線為「開啟」。圖例顯示當 3-pin 跳線的跳線蓋套在 pin1 及 pin2 時，這兩個針腳皆為「短路」。



清除 CMOS 跳線

(CLRCMOS1)

(請參閱第 1 頁，編號
20)



預設



清除 CMOS

您可利用 CLRCMOS1 清除 CMOS 中的資料。若要清除及重設系統參數為預設設定，請先關閉電腦電源，再拔下電源供應器的電源線。在等待 15 秒後，請使用跳線帽讓 CLRCMOS1 上的 pin2 及 pin3 短路約 5 秒。不過，請不要在更新 BIOS 後立即清除 CMOS。若您需在更新 BIOS 後立即清除 CMOS，則必須先重新啟動系統，然後於進行清除 CMOS 動作前關機。請注意，只有在取出 CMOS 電池時才會清除密碼、日期、時間及使用者預設設定檔。



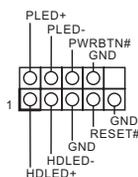
清除 CMOS 開關擁有與清除 CMOS 跳線相同的功能。

1.4 板載排針及接頭



板載排針及接頭都不是跳線。請勿將跳線帽套在這些排針及接頭上。將跳線帽套在排針及接頭上，將造成主機板永久性的受損。

系統面板排針
(9-pin PANEL1)
(請參閱第 1 頁，編號 17)



請依照以下的針腳排列將機殼上的電源開關、重設開關及系統狀態指示燈連接至此排針。在連接纜線之前請注意正負針腳。



PWRBTN (電源開關) :

連接至機殼前面板上的電源開關。您可設定使用電源開關關閉系統電源的方式。

RESET (重設開關) :

連接至機殼前面板上的重設開關。若電腦凍結且無法執行正常重新啟動，按下重設開關即可重新啟動電腦。

PLED (系統電源 LED) :

連接至機殼前面板上的電源狀態指示燈。系統正在運作時，此 LED 會亮起。系統進入 S1/S3 睡眠狀態時，LED 會持續閃爍。系統進入 S4 睡眠狀態或關機 (S5) 時，LED 會熄滅。

HDLED (硬碟活動 LED) :

連接至機殼前面板上的硬碟活動 LED。硬碟正在讀取或寫入資料時，LED 會亮起。

各機殼的前面板設計各有不同。前面板模組主要是由電源開關、重設開關、電源 LED、硬碟活動 LED、喇叭及其他裝置組成。將機殼前面板模組連接至此排針時，請確定佈線及針腳指派皆正確相符。

電源 LED 排針

(3-pin PLED1)

(請參閱第 1 頁, 編號 16)



請將機殼電源 LED 連接至此排針, 以指示系統的電源狀態。

Serial ATA3 接頭

(S_SATA3_0_1:

請參閱第 1 頁, 編號 10)

(S_SATA3_2_3:

請參閱第 1 頁, 編號 12)

(SATA3_0_3:

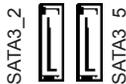
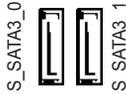
請參閱第 1 頁, 編號 13)

(SATA3_1_4:

請參閱第 1 頁, 編號 14)

(SATA3_2_5:

請參閱第 1 頁, 編號 15)



這十組 SATA3 接頭皆支援內部儲存裝置的 SATA 資料纜線, 最高可達 6.0 Gb/s 資料傳輸率。若連接背後 I/O 上的 eSATA 連接埠, 內部 S_SATA3_3 將不會作用。如果已佔用 Ultra M.2 插槽, 內部 S_SATA3_2 將無法作用。

* RAID 僅支援

SATA3_0 ~ SATA3_5 連接埠。

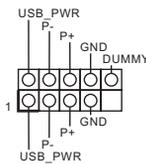
USB 2.0 排針

(9-pin USB5_6)

(請參閱第 1 頁, 編號 24)

(9-pin USB7_8)

(請參閱第 1 頁, 編號 23)

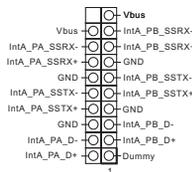


除了 I/O 面板上的四個 USB 2.0 連接埠外, 在本主機板上還有另外兩組排針。各 USB 2.0 排針皆可支援兩個連接埠。

USB 3.0 排針

(19-pin USB3_5_6)

(請參閱第 1 頁, 編號 8)

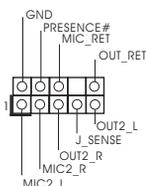


除了 I/O 面板上的四個 USB 3.0 連接埠外, 在本主機板上還有另外一組排針。各 USB 3.0 排針皆可支援兩個連接埠。

前面板音訊排針

(9-pin HD_AUDIO1)

(請參閱第 1 頁，編號 28)



本排針適用於連接音訊裝置至前面板音訊。

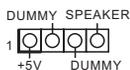


1. 高解析度音訊支援智慧型音效介面偵測 (Jack Sensing)，但機殼上的面板線必須支援 HDA 才能正確運作。請依本手冊及機殼手冊說明安裝系統。
2. 若您使用 AC' 97 音訊面板，請按照以下步驟安裝至前面板音訊排針：
 - A. 將 Mic_IN (MIC) 連接至 MIC2_L。
 - B. 將 Audio_R (RIN) 連接至 OUT2_R 且將 Audio_L (LIN) 連接至 OUT2_L。
 - C. 將接地 (GND) 連接至接地 (GND)。
 - D. MIC_RET 及 OUT_RET 僅供 HD 音訊面板使用。您不需要在 AC' 97 音訊面板上連接。
 - E. 若要啟動前側麥克風，請前往 Realtek 控制面板中的「FrontMic」標籤調整「錄音音量」。

機殼喇叭排針

(4-pin SPEAKER1)

(請參閱第 1 頁，編號 21)

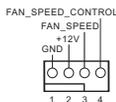


請將機殼喇叭連接至此排針。

機殼及電源風扇接頭

(4-pin CHA_FAN1)

(請參閱第 1 頁，編號 22)



請將風扇纜線連接至風扇接頭，並比對黑線及接地針腳。
CHA_FAN 可由 UEFI 或 A-Tuning 設定。

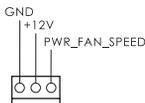
(3-pin CHA_FAN2)

(請參閱第 1 頁，編號 9)



(3-pin PWR_FAN1)

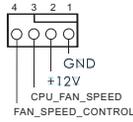
(請參閱第 1 頁，編號 30)



CPU 風扇接頭

(4-pin CPU_FAN1)

(請參閱第 1 頁，編號 4)



本主機板配備 4-Pin CPU 風扇 (靜音風扇) 接頭。若您計畫連接 3-Pin CPU 風扇，請接至 Pin 1-3。

(3-pin CPU_FAN2)

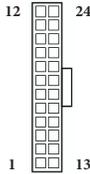
(請參閱第 1 頁，編號 5)



ATX 電源接頭

(24-pin ATXPWR1)

(請參閱第 1 頁，編號 7)

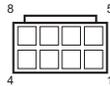


本主機板配備一組 24-pin ATX 電源接頭。若要使用 20-pin ATX 電源供應器，請插入 Pin 1 及 Pin 13。

ATX 12V 電源接頭

(8-pin ATX12V1)

(請參閱第 1 頁，編號 2)

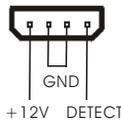


本主機板配備一組 8-pin ATX 12V 電源接頭。若要使用 4-pin ATX 電源供應器，請插入 Pin 1 及 Pin 5。

PCIe 電源接頭

(4-pin PCIe_PWR1)

(請參閱第 1 頁，編號 27)



安裝三張以上的顯示卡時，請將 4 pin molex 電源線接至此接頭。

硬碟守護神連接埠

(4-pin SATA_PWR_1)

(請參閱第 1 頁，編號 11)



請將 HDD Saver 纜線接至此接頭，以管理 HDD 的電源狀態。

Thunderbolt AIC 連接埠

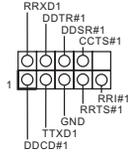
(5-pin TBT1)

(請參閱第 1 頁，編號 26)



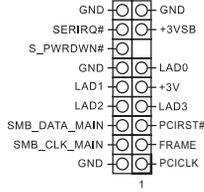
安裝 Thunderbolt™ 附加介面卡 (AIC) 時，請將 5-pin 訊號纜線 (GPIO 纜線) 接至此接頭。

序列連接埠排針
(9-pin COM1)
(請參閱第 1 頁，編號 25)



此排針支援序列連接埠模組。

TPM 標頭
(17-pin TPMS1)
(請參閱第 1 頁，編號 6)



此接頭支援信賴平台模組 (TPM) 系統，可確保儲存金鑰、數位憑證、密碼及資料的安全。TPM 系統也能強化網路安全、保護數位身分並確定平台完整性。

1.5 智慧型開關

主機板設有四個智慧型開關：電源開關、重設開關、清除 CMOS 開關及一個 BIOS 選擇開關，可讓使用者迅速開啟／關閉系統、重設系統、清除 CMOS 值或從不同的 BIOS 開機。

電源開關

(PWRBTN)

(請參閱第 1 頁，編號 18)



電源開關可讓使用者迅速開啟／關閉系統。

重設開關

(RSTBTN)

(請參閱第 1 頁，編號 19)



重設開關可讓使用者迅速重設系統。

清除 CMOS 開關

(CLRCBTN)

(請參閱第 3 頁，編號 15)



清除 CMOS 開關可讓使用者迅速清除 CMOS 值。



此功能唯有在將電腦關機，拔下電源供應器的插頭時才會作用。

BIOS 選擇開關

(BIOS_SEL1)

(請參閱第 1 頁，編號 29)



BIOS 選擇開關 可讓系統以 BIOS A 或 BIOS B 開機。



本主機板設有兩個板載 BIOS 晶片，分別是主 BIOS (BIOS_A) 與備用 BIOS (BIOS_B)，可增進系統安全及穩定性。一般而言，系統會以主 BIOS 運作。然而，若主 BIOS 損毀或損壞，僅需將 BIOS 選擇開關扳至「B」，備用 BIOS 便會接管下一次的系統開機作業。之後再使用 UEFI 設定公用程式內的「Secure Backup UEFI」，將 BIOS 檔案內的工作複本複製到主 BIOS 內，以確保系統正常運作。為了安全的緣故，使用者無法手動更新備份 BIOS。使用者可參考 BIOS LED (BIOS_A_LED 或 BIOS_B_LED)，辨識目前正啟動哪一個 BIOS。

Spesifikasi

Platform

- Bentuk dan Ukuran Micro ATX
- PCB Serat Kaca dengan Kerapatan Tinggi

CPU

- Mendukung Kelompok Prosesor Intel® Core™ i7 dan Xeon® 18-Core untuk Soket LGA 2011-3
- Desain Digi Power
- Desain 12 Fase Daya
- Mendukung Teknologi Intel® Turbo Boost 2.0
- Mendukung Teknologi Untied Overclocking

Chipset

- Intel® X99

Memori

- Teknologi Memori Quad Channel DDR4
- 4 x Slot DDR4 DIMM
- Mendukung DDR4 3000+(OC)*/2933+(OC)/2800(OC)/2400(OC)/ 2133/1866/1600/1333/1066 non-ECC, memori tanpa buffer

* Lihat Daftar Dukungan Memori pada situs web ASRock untuk informasi selengkapnya. (<http://www.asrock.com/>)

- Mendukung non-ECC RDIMM (DIMM Terdaftar)
- Mendukung DDR4 ECC, memori tanpa buffer/RDIMM dengan prosesor Intel® Xeon® seri E5 di Soket LGA 2011-3
- Kapasitas maksimum memori sistem: 64GB (lihat PERHATIAN)
- Mendukung Intel® Extreme Memory Profile (XMP)2.0
- 15µ Bidang Kontak berwarna Emas di Slot DIMM

Slot Ekspansi

- 2 x PCI Express 3.0 x 16 Slot (mode PCIE1 @ x16; mode PCIE2 @ x16)

* Jika Anda memasang CPU dengan 28 jalur, maka PCIE1/PCIE2 akan dijalankan pada x16/x8.

- 1 x slot PCI Express 2.0 x16 (PCIE3: mode x4)
- Mendukung AMD Quad CrossFireX™ dan CrossFireX™
- Mendukung NVIDIA® Quad SLI™ dan SLI™
- 15µ Bidang Kontak berwarna Emas di Slot VGA PCIe (PCIE1 dan PCIE2)

Audio

- Audio HD 7.1 CH dengan Perlindungan Konten (Realtek ALC1150 Audio Codec)
- Mendukung Audio Blu-ray Premium
- Mendukung Perlindungan Lonjakan Arus (ASRock Full Spike Protection)
- Mendukung Purity Sound™ 2
 - Nichicon Fine Gold Series Audio Caps
 - 115dB SNR DAC dengan Amplifier Diferensial
 - TI* NE5532 Premium Headset Amplifier (Mendukung hingga headset 600 Ohm)
 - Teknologi Direct Drive
 - Penutup Berpelindung EMI
 - Pelindung Terisolasi PCB
- Mendukung DTS Connect

LAN

- 1 x Intel® I218V (Gigabit LAN PHY 10/100/1000 Mb/s)
- 1 x Qualcomm® Atheros® Killer™ E2200 Series (PCIE x1 Gigabit LAN 10/100/1000 Mb/s)
- Mendukung Teknologi Qualcomm® Atheros® Security Wake On Internet Technology (pada Qualcomm® Atheros® Killer™ E2200 Series)
- Mendukung Wake-On-LAN
- Mendukung Perlindungan Petir/ESD (ASRock Full Spike Protection)
- Mendukung Energy Efficient Ethernet 802.3az
- Mendukung PXE

Panel I/O Belakang

- 1 x Port Mouse/Keyboard PS/2
- 1 x Port SPDIF Out Optik
- 1 x Konektor eSATA
- 3 x Port USB 2.0 (Mendukung Perlindungan ESD (ASRock Full Spike Protection))
- 1 x Port Mouse Fatal1ty (USB 2.0) (Mendukung Perlindungan ESD (ASRock Full Spike Protection))
- 4 x Port USB 3.0 (Mendukung Perlindungan ESD (ASRock Full Spike Protection))
- 2 x Port LAN RJ-45 dengan LED (ACT/LINK LED dan SPEED LED)
- 1 x Clear CMOS Switch
- Soket Audio HD: Speaker Belakang/Tengah/Bas/Saluran masuk/Speaker Depan/Mikrofon

Penyimpanan

- 10 x Konektor SATA3 6.0 Gb/s, mendukung RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage Technology 13), NCQ, AHCI, Hot Plug, dan ASRock HDD Saver Technology
(konektor S_SATA3_3 digunakan dengan port eSATA)
(konektor S_SATA3_2 digunakan dengan port Ultra M.2 Socket)
- * RAID hanya didukung di slot SATA3_0 ~ SATA3_5.
- 1 x Konektor eSATA, mendukung NCQ, AHCI, dan Hot Plug
- 1 x Soket Ultra M.2, mendukung modul M.2 SATA3 6,0 Gb/s dan modul M.2 PCI Express hingga Gen3 x4 (32 Gb/s)

Konektor

- 1 x Header Port COM
- 1 x TPM Header
- 1 x Header LED Daya
- 2 x Konektor Kipas CPU (1 x 4-pin, 1 x 3-pin)
- 2 x Konektor Kipas Chassis (1 x 4-pin, 1 x 3-pin) (Kontrol Kecepatan Kipas Pintar)
- 1 x Konektor Kipas Daya (3-pin)
- 1 x Konektor Daya ATX 24 pin
- 1 x Konektor Daya 12 V 8 pin (Konektor Daya dengan Kerapatan Tinggi)
- 1 x Kabel Pengaman HDD
- 1 x Konektor Daya PCIe
- 1 x Konektor Audio Panel Depan
- 1 x Konektor Thunderbolt AIC
- 2 x Header USB 2.0 (Mendukung 4 port USB 2.0) (Mendukung Perlindungan ESD (ASRock Full Spike Protection))
- 1 x Header USB 3,0 (Mendukung 2 port USB 3,0) (Mendukung Perlindungan ESD (ASRock Full Spike Protection))
- 1 x Dr. Debug disertai LED
- 1 x Tombol Daya disertai LED
- 1 x Tombol Atur Ulang disertai LED
- 1 x Switch Pilihan BIOS

Fitur BIOS

- 2 x 128Mb AMI UEFI Legal BIOS dengan dukungan GUI multibahasa (1 x BIOS Utama dan 1 x BIOS Cadangan)
- Mendukung Teknologi Pencadangan Aman UEFI
- ACPI 1.1 Kompatibel dengan aktivitas pengaktifan
- Dukungan SMBIOS 2.3.1

- Multipengatur Tegangan CPU, DRAM, PCH 1.05V, PCH 1,5V, VPPM

**Monitor
Perangkat
Keras**

- Sensor suhu CPU/Chassis
- Takometer CPU/Chassis/Kipas Daya
- Kipas Hening CPU/Chassis (Penyesuaian otomatis kecepatan kipas berdasarkan suhu CPU)
- Kontrol multikecepatan Kipas CPU/Chassis
- Pemantauan tegangan: Tegangan +12V, +5V, +3.3V, Input CPU, Internal CPU

OS

- Microsoft® Windows® 10 64-bit/8.1 32-bit/8.1 64-bit/8 32-bit/8 64-bit/7 32-bit/7 64-bit

Sertifikasi

- FCC, CE, WHQL
- Siap untuk ErP/EuP (memerlukan catu daya untuk ErP/EuP)

* Untuk informasi tentang produk rinci, kunjungi situs web kami: <http://www.asrock.com>



Perlu diketahui, overclocking memiliki risiko tertentu, termasuk menyesuaikan pengaturan pada BIOS, menerapkan Teknologi Untied Overclocking, atau menggunakan alat overclocking pihak ketiga. Overclocking dapat mempengaruhi stabilitas sistem, atau bahkan dapat mengakibatkan kerusakan komponen dan perangkat sistem. Risiko dan biaya apapun menjadi tanggungan Anda. Kami tidak bertanggung jawab atas kemungkinan kerusakan karena overclocking.



Karena keterbatasan, ukuran memori sebenarnya mungkin kurang dari 4GB karena akan digunakan sistem berdasarkan sistem operasi Windows® 32-bit. Sistem operasi Windows® 64-bit tidak memiliki keterbatasan tersebut. Anda dapat menggunakan AS-Rock XFast RAM untuk memanfaatkan memori yang tidak dapat digunakan Windows® tersebut.

Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at <http://www.asrock.com>; or you may contact your dealer for further information. For technical questions, please submit a support request form at <http://www.asrock.com/support/tsd.asp>

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