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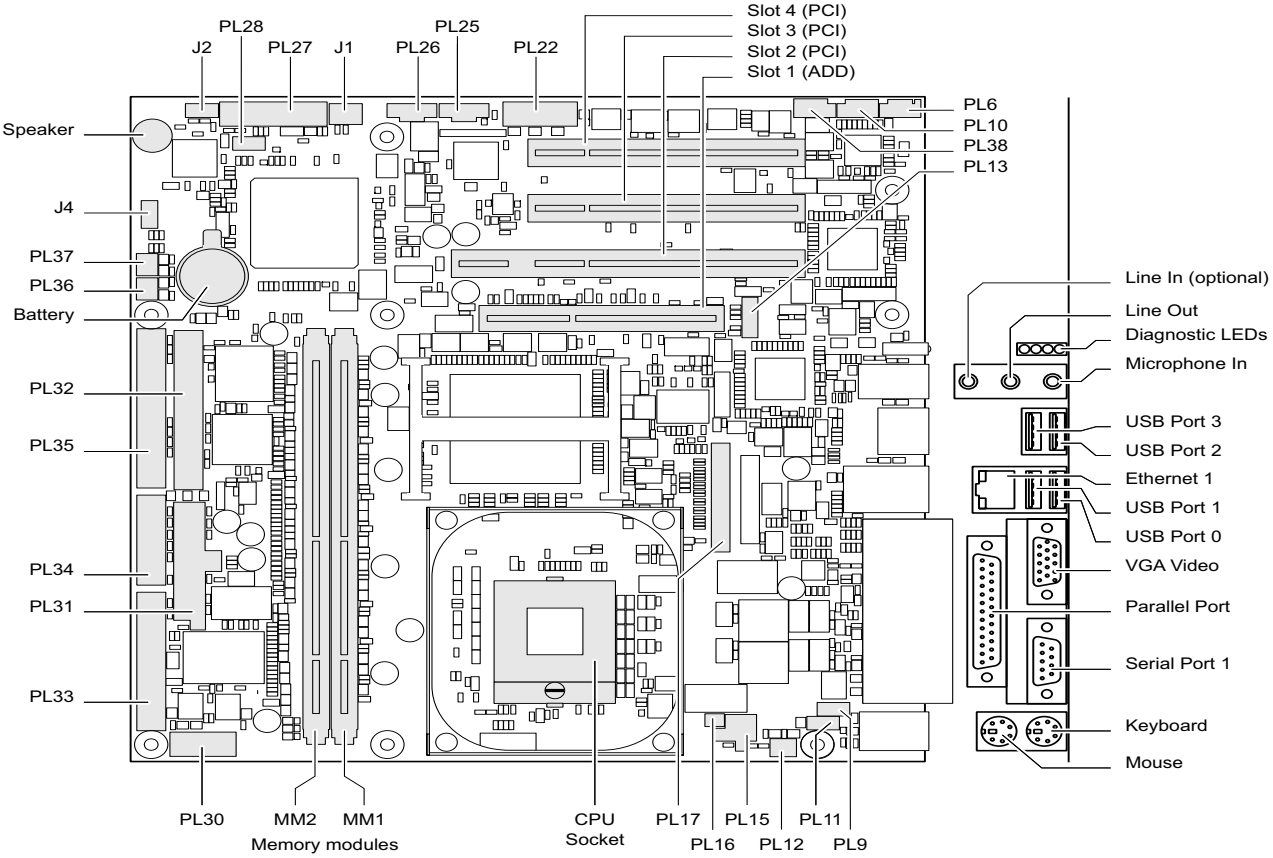
Embedded Motherboards

Endura LS855 µATX

QuickStart Guide

The following information is provided to help you quickly configure, install and operate your RadiSys LS855 µATX motherboard. Refer to the product manual for more detailed information.

The RadiSys LS855 is an ATX-family motherboard that meets the µATX form factor specification and is based around an Intel® 855-family chipset that supports Intel® Celeron™ M and Pentium® M processors. Its features include low power operation, dual independent video displays, ECC memory support, AC97 audio, six USB 2.0 ports and an 10/100Mbps Ethernet connection on a board measuring 9.6 x 9.6 inches.



J1	Operating Mode and Riser Enable Jumper	PL25	USB Port 5 Header
J2	3-Pin Power LED Header	PL26	USB Port 4 Header
J4	Hard-Switched PSU Jumper	PL27	Front Panel Header
PL6	ATAPI CD-ROM Audio Header	PL28	SMBUS Header
PL9	Keyboard Header	PL30	RS232 Serial Port 2 Header
PL10	ATAPI AUX Line-In Header	PL31	ATX Power Connector
PL11	Mouse Header	PL32	Secondary IDE Connector
PL12	Processor Fan	PL33	Floppy Diskette Connector
PL13	LVDS Flat Panel Backlight Control Header	PL34	GPIO Header
PL15	ATX12V Power Connector	PL35	Primary IDE Connector
PL16	Remote Thermal Sensor Header	PL36	System Fan 1
PL17	LVDS Flat Panel Header	PL37	System Fan 2
PL22	External LAN Status LED Header	PL38	ATAPI Audio Line-Out Header

Quick Start

To begin operating your LS855 motherboard, perform the following:

- Read and Save All Instructions.
- Ensure that the jumper settings match your requirements.
- Attach all necessary peripheral devices to the appropriate headers and connections using the information provided on the following page.
- Power on the system.
- Run the BIOS setup utility (press <F2> during POST) if you need to change any settings to match your requirements.

Caution - There is a risk of explosion if the battery is replaced with an incorrect type. Dispose of used batteries according to the manufacturer's instructions.

To avoid damage or injury, always exercise the following precautions when handling this product:

- Use a grounding wrist strap or other static dissipating device.
- Power off the system.
- Disconnect all power cables.

Power Supply Requirements

The board supports both hard- and soft-switched ATX style power supplies that have the additional 12V connector and that conform to the ATX12V specification. The BIOS can be configured via system enclosure data for the appropriate type being used. In cases when a hard-switched power supply does not provide a 5V standby rail on its PSU connector the Hard-Switched PSU jumper (J4) should be fitted.

Processor Support

The motherboard supports 478-pin µFC-PGA Intel® Celeron™ M and Pentium® M processors operating on a 400MHz front side bus. Both the processor voltage and operating frequency are automatically adjusted by the motherboard to suit the installed processor.

System Memory

Two vertical 184-pin DIMM sockets are available that accept 64-bit (without ECC) and 72-bit (with ECC) PC1600 (DDR200), PC2100 (DDR266) or PC2700 (DDR333) DDR SDRAM memory modules with Serial Presence Detect (SPD), providing support for 64MB to 2GB.

Video

The LS855 supports three types of video output of which two can be driven independently. See the product manual for further details. VGA video and 24-bit single channel flat panel LVDS (an 18-bit dual channel version is available as an option) are available from the Intel integrated 855 chipset whilst the ADD slot supports digital display adapters for driving flat panel monitors or to provide TV-Out capability.

Ethernet

A single IEEE 802.3 compatible Ethernet port is available that is based around the Intel 82551ER controller to provide 10/100Mbps configuration. Connection to the network is achieved through the RJ45 connector that has integral LED's to provide Link status information.

PCI Riser Support

The three bus master PCI 2.2 compliant slots each have 3-slot riser card support providing a maximum of five usable slots in total. PCI Slot 2 provides riser support via its standard ATX riser connector and requires no reconfiguration when switching between a riser or direct PCI slot. When using a riser in either PCI slots 3 or 4, however, the riser enable jumper (J1) must be set to differentiate it from a direct PCI slot. See the product manual for further information.

Operating Mode Jumper (J1)

This jumper selects one of three operating modes for the motherboard:

***Normal Mode* - Default (Jumper fitted between pins 1 & 3)**

This is the position the jumper should be in for normal operation of the motherboard.

***Configure Mode* (Jumper fitted between pins 3 & 5)**

Following POST, the BIOS Setup utility will automatically run with its options reset to their default values. Additional BIOS settings are also available within Setup in this mode.

***Recovery Mode* (No jumper fitted)**

In this mode the motherboard will not boot but will wait until a valid recovery diskette is detected and will then copy a new BIOS into the ROM. The motherboard must be powered down and then re-powered with the jumper in the normal position before normal operation can resume.

BIOS

The BIOS is based on Phoenix FirstBIOS™ Pro with configuration of the motherboard, in the majority of cases, being achieved through BIOS settings. These can be viewed and modified using the BIOS setup utility that can be started by pressing the <F2> key during POST.

Technical and Product Support

BIOS updates, device drivers, product and technical support documentation is available for download from the RadiSys Web site (http://www.radisys.com) and on a CD-ROM that is available on request.

Connector Descriptions

Operating Mode and Riser Enable Jumper (J1)			
Pin	**Signal**	**Pin**	**Signal**
1	NORMAL	2	*Not Used*
3	+3.3V	4	RISER ID
5	CONFIGURE	6	GND

3-Pin Power LED (J2)	
Pin	**Signal**
1	GREENLED-/YELLOWLED+
2	KEY
3	GREENLED+/YELLOWLED-

ATAPI Audio Headers (PL6, PL10 & PL38)	
Pin	**Signal**
1	LEFT CHANNEL
2	GND
3	GND
4	RIGHT CHANNEL

Keyboard & Mouse Headers (PL9 & PL11)	
Pin	**Signal**
1	+5V Fused
2	DATA
3	GND
4	CLOCK

USB Internal Ports 4 & 5 (PL25 and 26)	
Pin	**Signal**
1	+5V Fused
2	DATA-
3	DATA+
4	GND
5	GND

SMBus Header (PL28)	
Pin	**Signal**
1	+3.3V
2	DATA
3	CLOCK
4	GND

Front Panel Header (PL27)			
Pin	**Signal**	**Pin**	**Signal**
1	HDLED+	2	PWRLED+
3	HDLED-	4	PWRLED-
5	RESETSW-	6	PWRSW+
7	RESETSW+	8	PWRSW-
9	+5V Fused	10	SPKR+
11	*Not Used*	12	SPKR-
13	GND	14	KEY
15	*Not Used*	16	SPKR-
17	*Not Used*	18	TAMPERSW+
19	*Not Used*	20	TAMPERSW-

Serial Port 2 Header (PL30)			
Pin	**Signal**	**Pin**	**Signal**
1	DCD	2	DSR
3	RxD	4	RTS
5	TxD	6	CTS
7	DTR	8	RING
9	GND	10	KEY

Note: Matches standard 9-way pin out via ribbon cable.

General Purpose I/O Header (PL34)			
Pin	**Signal**	**Pin**	**Signal**
1	GND	2	+5V Fused
3	PWM	4	GPIO20
5	GPIO21	6	GPO22
7	GPIO10	8	GPIO11
9	GPIO12	10	GPIO13
11	GPIO14	12	GPIO15
13	GPIO16	14	GPIO17
15	*Reserved*	16	KEY
17	GND	18	GPI23
19	GND	20	GPI24

External LAN LED Header (PL22)			
Pin	**Signal**	**Pin**	**Signal**
1	150R Pullup	2	LAN 2 ACTIVITY#
3	150R Pullup	4	LAN 2 LINK#
5	LAN 2 SPEED# (1000Mbps)	6	LAN 2 SPEED# (100Mbps)
7	150R Pullup	8	LAN 1 ACTIVITY#
9	150R Pullup	10	LAN 1 LINK#
11	LAN 1 SPEED# (1000Mbps)	12	LAN 1 SPEED# (100Mbps)

Note: The LAN2 pins are inactive.

Remote Thermal Sensor (PL16)	
Pin	**Signal**
1	DIODE+
2	DIODE-

Single Channel LVDS Connector (PL17)			
Pin	**Signal**	**Pin**	**Signal**
1	GND	16	SHIELD
2	+3.3V, 0.8A Max.	17	CLKA-
3	+3.3V, 0.8A Max.	18	CLKA+
4	+3.3V, 10mA Max.	19	SHIELD
5	*Not Used*	20	A3- (B0-)
6	DDC CLOCK	21	A3+ (B0+)
7	DDC DATA	22	SHIELD
8	A0-	23	*Reserved* (B1-)
9	A0+	24	*Reserved* (B1+)
10	SHIELD	25	SHIELD
11	A1-	26	*Reserved* (B2-)
12	A1+	27	*Reserved* (B2+)
13	SHIELD	28	SHIELD
14	A2-	29	*Reserved* (CLKB-)
15	A2+	30	*Reserved* (CLKB+)

Note: Data in brackets applies to the Dual Channel 18-bit option.

LVDS Flat Panel Backlight Control Header (PL13)	
Pin	**Signal**
1	INVERTER POWER (+12V, 0.8A Max.)
2	GND
3	GND
4	+5V (10mA Max.)
5	CLOCK
6	DATA/PWM CONTROL
7	ENABLE

Note: The audio Line-Out connectors are designed to drive headphones or active speakers and care must be taken when using both simultaneously to ensure that the combined load does not have an adverse effect on the output levels.