AS-3210

Setup Manual

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Version 2.12

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Introduction

This manual describes the AS-3210 hardware in Part 1, and the basic usage of the AS-3210 in Part 2.

table of contents

Item Contents Page

~ Part 1: Hardware ~

Part 1 explains the hardware of the AS-3210, including the board's hardware configuration and various built-in functions (video, multi-I/O, watchdog timer, flash disk).
This is about.

Chapter 1 Hardware Configuration

1.1 Overview

MIS AS-3210 uses the IBM PC/AT architecture.
It is an AT-compatible single-board computer. It is an all-in-one CPU card with a half-size ISA bus, equipped with various functions such as a CPU, multi-I/O, SVGA, Flash-Disk, and watchdog timer, and comes pre-installed with 4MB of system memory.
The CPU can be selected from 486 series CPUs installed in a PGA socket.
Multi-I/O function for keyboard, PS2 mouse, serial, parallel,
It is equipped with interfaces such as IDE (HDD) and FDD.
In addition, SVGA (CRT/LCD compatible) with VESA VL-BUS connection
This board is equipped with a 2MB or 4MB flash disk that emulates a hard disk, making it extremely useful for
embedded applications.

This allows for the construction of a compact system.

1.2 Specifications

• Processor (33MHz standard) 486SX, DX, DX2, DX4

• System memory

Implementation: 4MByte, Expansion: 72-pin SIMM x 1 (Max 32MByte)

• System BIOS Award BIOS •Supports power

management function

• Serial port 2 channels

RS232C (with 16 Byte FIFO) Parallel port 1

channel

Centronics compliant (SPP/EPP/ECP compatible) •Hard

disk I/F (Local Bus IDE) •Floppy disk I/F

• Keyboard & PS2 mouse I/F

• Video I/F (VESA VL-BUS connection)

CRT 1024×768 16 colors

LCD 640 x 480 256 colors

Equipped with Flash-Disk function 2M/

4MB implementation Hard

   disk emulation (used in C:/D:) Floppy disk emulation (used in A:/

   B:) ROM-DISK (write-protected floppy disk emulation) Select one of the

   above

• Equipped with a watchdog timer function

Timeout 1.6 seconds, used with IRQ15 or RESET
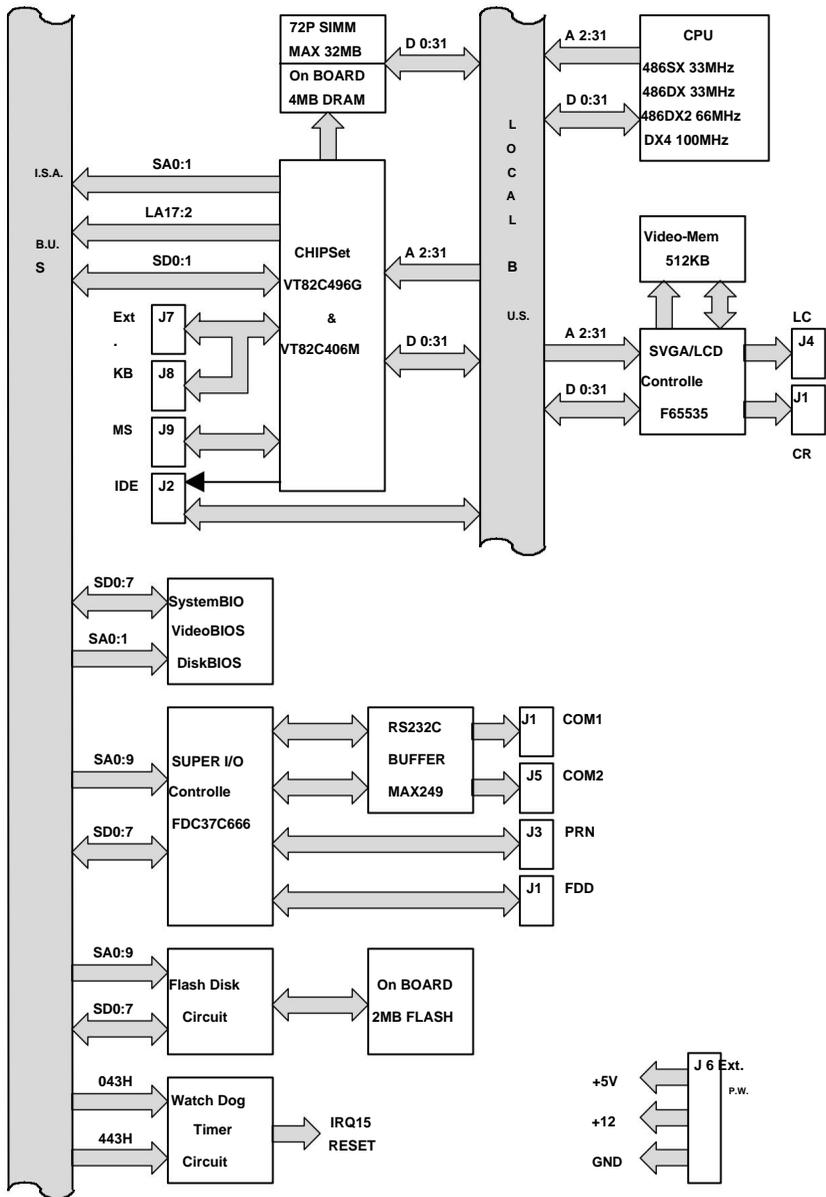
• Card dimensions: length 185.00mm, width 122.00mm

Operating power supply voltage: +5V±5% (+12V may be required when using an LCD)

• Operating temperature range: 0 to

60°C. No condensation. Separate heat dissipation measures for the CPU.

1.3 Block Diagram

72P SIMM MAX 32MB On BOARD 4MB DRAM	D 0:31
A 2:31	CPU 486SX 33MHz 486DX 33MHz 486DX2 66MHz DX4 100MHz

I.S.A.

SA0:1

LA17:2

B.U.S

SD0:1

L O C A L B U.S.

CHIPSet VT82C496G & VT82C406M

A 2:31

D 0:31

D 0:31

A 2:31

D 0:31

Video-Mem 512KB

SVGA/LCD Controlle F65535

LC J4

J1

CR

Ext. J7

KB J8

MS J9

IDE J2

SD0:7

SystemBIO VideoBIOS DiskBIOS

SA0:1

SA0:9

SUPER I/O Controlle FDC37C666

SD0:7

RS232C BUFFER MAX249

J1 COM1

J5 COM2

J3 PRN

J1 FDD

SA0:9

Flash Disk Circuit

SD0:7

On BOARD 2MB FLASH

043H

Watch Dog Timer Circuit

443H

IRQ15 RESET

J 6 Ext. P.W.

+5V

+12

GND

6

1.4 Memory Map

The memory map for the AS-3210 is as follows:

```
000000H  ┌─────────────────────┐  ◄─────────────────┐
         │  Conventional Memory │                    │
         │      640K Bytes      │                    │
0A0000H  ├─────────────────────┤  ◄──────┐          │
         │    Video Memory      │         │          │
         │    (512K Bytes)      │         │          │
0C0000H  ├─────────────────────┤         │          │
         │    Video BIOS        │         │          │
         │    32K Bytes         │         │          │
0C8000H  ├─────────────────────┤         │          │
         │  Flash-Disk BIOS     │    BIOS Area    On Board
         │    32K Bytes         │                 Memory Area
0D0000H  ├─────────────────────┤         │          │
         │                      │         │          │
         │                      │         │          │
0F0000H  ├─────────────────────┤         │          │
         │    System BIOS       │         │          │
         │    64K Byte          │         │          │
100000H  ├─────────────────────┤  ◄──────┘          │
         │  Extended Memory     │                    │
         │  On Board 4M Byte    │                    │
         ├─────────────────────┤  ◄─────────────────┘
         │  Extended Memory     │
         │ SIMM (MAX 32M Byte)  │
         └─────────────────────┘
```
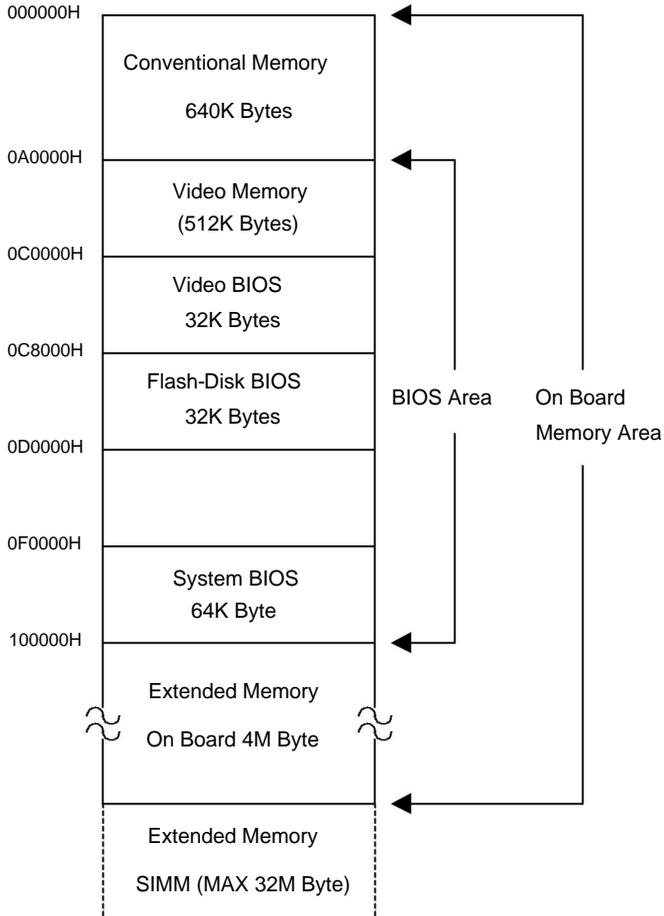
Total Memory=4MB(On Board)+SIMM(MAX 32MB)=MAX 36MB

1.5 I/O Map

The I/O map for the AS-3210 is as follows:

Address Device	
000 - 00F DMA controller 1	
020 - 03F Interrupt Controller 1	
040 - 05F Timer 043(read)	
Watchdog timer En/Di	
060 - 06F Keyboard Controller	
070 - 07F RTC/RAM, NMI mask	
080 - 09F DMA page register	
0A0 - 0BF Interrupt Controller 2	
0C0 - 0DF DMA Controller 2	
0F0 - 0FF Coprocessor	
1F0 - 1F7 HDD/Controller	
1F8 - 1FF Flash-Disk	
278 - 27F Parallel Port 2	
2F8 - 2FF Serial port 2	
378 - 37F Parallel Port 1	
3F0 - 3F7 FDD Controller	
3F8 - 3FF Serial port 1 443(read) Watchdog	
timer REFRESH	

About I/O space The I/O space
of the ISA bus is 64K bytes. The CPU board
selects I/O by 10-bit decoding.

Because it generates signals, it is an I/O space
There are phantoms every 1024 bytes in
63 will appear.
For example, 100 of the 24-byte space
The 240 bytes of addresses 1EF are unused
space, so by decoding in 16 bits, 240 x 63
bytes of I/O space can be used, although it is
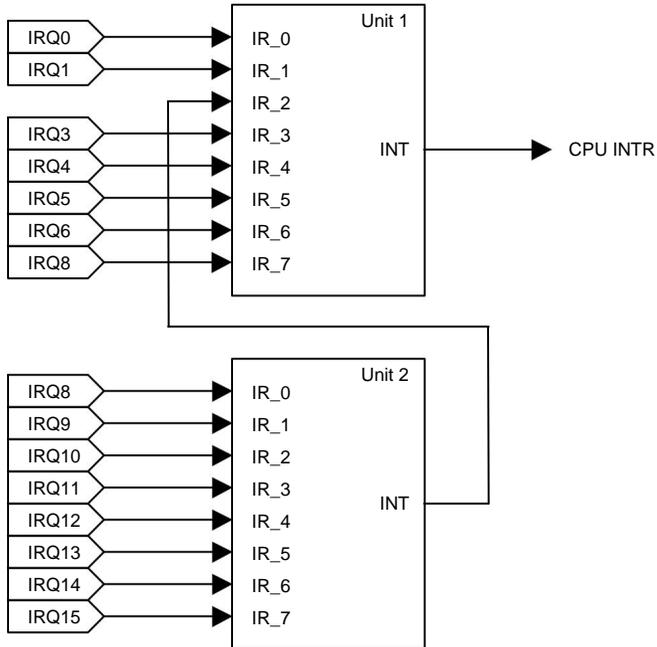broken up into small pieces.
It is also possible to do this.

SYSTEM I/O	0000H
	0100H
FREE AREA1	
	01F0 H
SYSTEM I/O	
	0400 H
phantom	
	0500 H
FREE AREA2	
	05F0 H
phantom	
	0800 H
repetition	

8
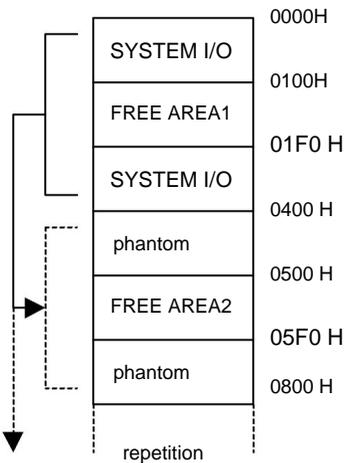
1.6 Interrupt

"AS-3210" is an 82C59A compatible interrupt controller

The block diagram and usage are as follows:

|	Vector usage			Vector usage	
IRQ0	08H Timer		IRQ8	70H	RTC
IRQ1	09H Keyboard		IRQ9	71H	Software Unused
IRQ2	0AH Cascade		IRQ10	72H	Unused
IRQ3	0BH	COM2	IRQ11	73H	(PS2
IRQ4	0CH	COM1	IRQ12	74H	Mouse) Coprocessor
IRQ5	0DH	Unused	IRQ13	75H	Hard Disk Unused
IRQ6	0EH	floppy parallel	IRQ14	76H	(WDT)
IRQ7	0FH		IRQ15	77H	

*1 IRQ15 can also be used with WDT

1.7 DMA

The AS-3210 is equipped with two 82C37A compatible DMA controllers (cascade connected). The block diagram and usage are as follows:
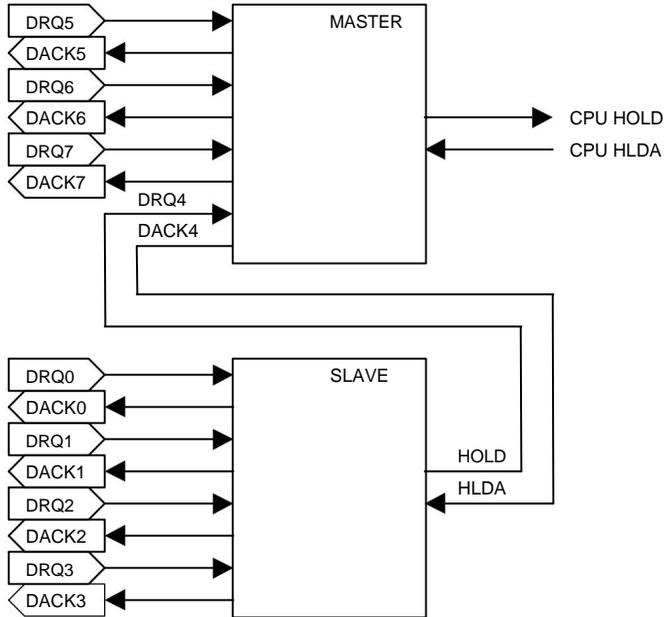
Controller Channel Usage		
MASTER	0	Unused
	1	Unused (Parallel) Floppy
	2	Unused
	3	(Parallel) Cascade
SLAVE	4	Unused
	5	Unused
	6	Unused
	7	

*Channels 1 and 3 can also be used as parallel ports.

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Chapter 2 Video Functions

The AS-3210 is equipped with an SVGA controller that also supports LCD display functions as a video function, allowing you to connect a CRT monitor and an LCD panel.

~ Specifications ~

•SVGA controller: F65535 manufactured by CHIPS&TECNOLOGY

•Video BIOS: Made by CHIPS&TECNOLOGY

•Video RAM: 512KB DRAM •Resolution CRT monitor:

1024 x 768 16 colors

: 640 x 480 256 colors

LCD panel: 640 x 480 256 colors

•I/F connector: 15-pin Dsub (CRT) : 50-pin header socket

(LCD)

•The controller is connected via VESA VL-BUS.

2.1 Connecting a CRT monitor

When using a CRT monitor, connect the cable to connector J11 (15-pin Dsub). Connect the cable from the CRT.
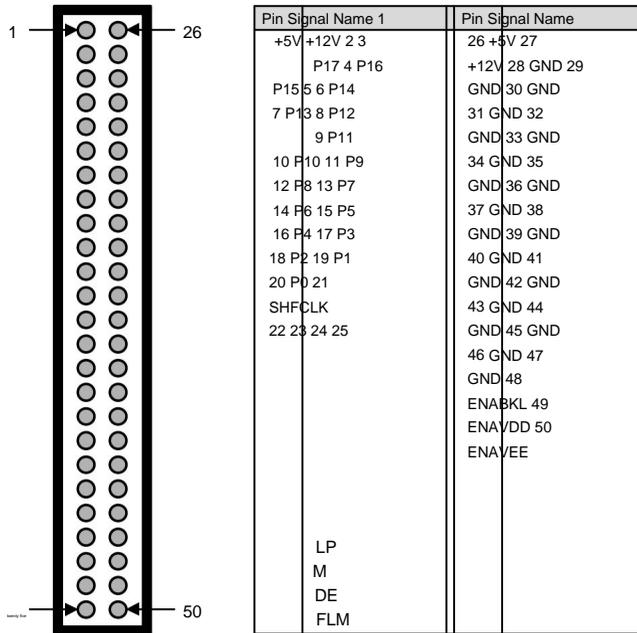
J11: Connector arrangement and pin assignment
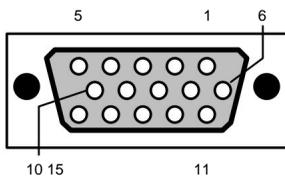
Pin 1	Signal name		Pin 9	Signal
	RED			name
2	GREEN BLUE		10	NC
3	NC GND		11	GND
4	GND		12	NC
5	GND		13	NC HSYNC
6	GND		14	VSYNC NC
7			15	
8				

2.2 Connecting the LCD panel

When using an LCD panel, connect the signal cable from the LCD panel to
connector J4 (50-pin header socket).

J4: Connector arrangement and pin assignment

Pin Signal Name 1		Pin Signal Name	
+5V +12V 2 3		26 +5V 27	
P17 4 P16		+12V 28 GND 29	
P15 5 6 P14		GND 30 GND	
7 P13 8 P12		31 GND 32	
9 P11		GND 33 GND	
10 P10 11 P9		34 GND 35	
12 P8 13 P7		GND 36 GND	
14 P6 15 P5		37 GND 38	
16 P4 17 P3		GND 39 GND	
18 P2 19 P1		40 GND 41	
20 P0 21		GND 42 GND	
SHFCLK		43 GND 44	
22 23 24 25		GND 45 GND	
		46 GND 47	
		GND 48	
		ENABKL 49	
		ENAVDD 50	
		ENAVEE	
LP			
M			
DE			
FLM			

Jumper post: P10 is the control signal for each LCD panel.

This is for selecting the desired setting.

Do not change the setting.

Jumper post: P10 setting (factory setting)

1-12 2-11 3-10 4-9 5-8 6-7
SHORT OPEN SHORT OPEN SHORT OPEN

2.3 LCD panel connection circuit

Connector: J4 has all the signals corresponding to various LCD panels assigned to it,

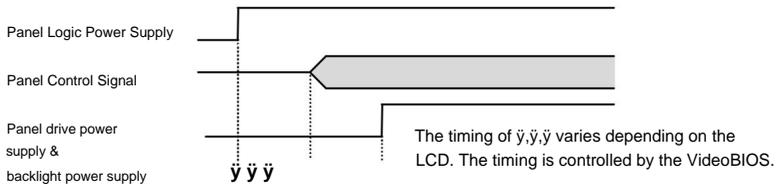but to actually use an LCD panel, the following is required: *

A dedicated cable to connect J4 to the LCD panel connector * An external

power supply to drive the LCD and its control circuit.

Particular attention should be paid to the power-on sequence (logic) for the LCD panel.
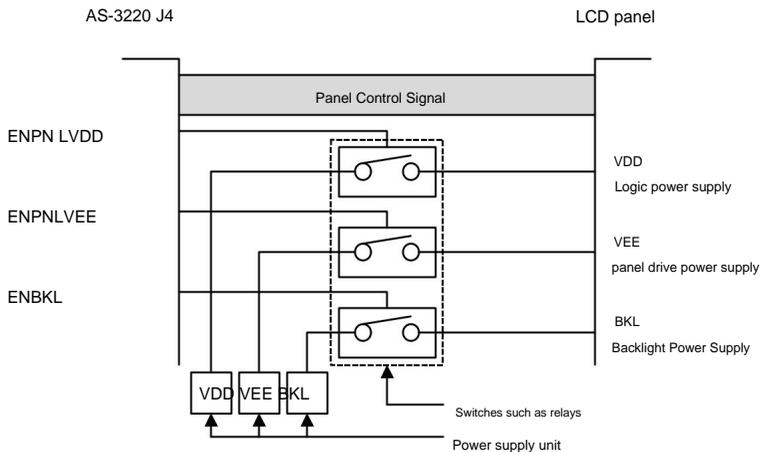
This procedure is performed by the LCD panel.

Therefore, prepare a power control circuit according to the LCD panel you are using.

Our PANEL-LCD series (sold separately) requires this power supply.

It is recommended to use this product as it is equipped with a control circuit and cable

conversion function.

Power-on sequence

Panel Logic Power Supply

Panel Control Signal

Panel drive power
supply &
backlight power supply

ÿ ÿ ÿ

The timing of ÿ,ÿ,ÿ varies depending on the
LCD. The timing is controlled by the VideoBIOS.

Power-on circuit (image)

AS-3220 J4

LCD panel

Panel Control Signal

ENPN LVDD

VDD
Logic power supply

ENPNLVEE

VEE
panel drive power supply

ENBKL

BKL
Backlight Power Supply

VDD VEE BKL

Switches such as relays

Power supply unit

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2.4 About the PANEL-LCD series

As explained in Sections 2 and 3, using an LCD panel is a very time-consuming task.

Our PANEL-LCD series (sold separately) is a dedicated relay board that comes with

the power control circuit, cable conversion mechanism, and VidoBIOS that are

required to use an LCD panel. There are two types of PANEL-LCD,

LCD3 and LCD4, which can be connected.

The LCD panels that can be used are as follows. If you use an LCD panel other than these,

If you have any questions, please be sure to consult us.

•PANEL-LCD3 (color TFT compatible)

NEC: NL6448AC30-10 PANEL-LCD4 (monochrome STN

compatible) Sharp: LM64P839 Optrex: DMF-50260-NFU-

FW-5

LCD panel connection diagram (image)
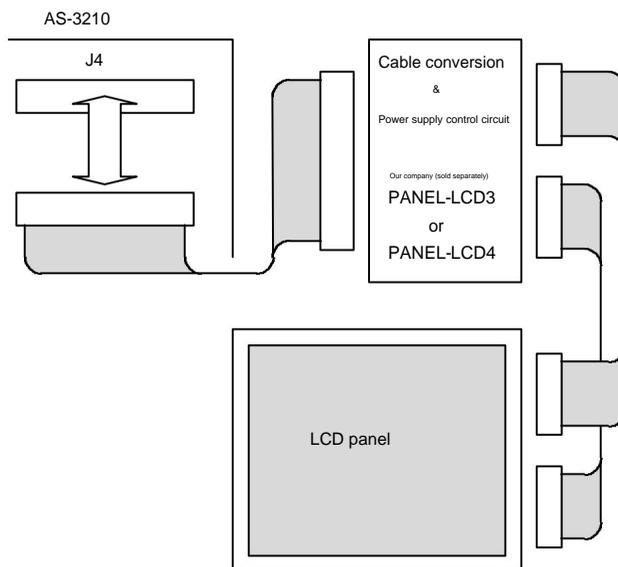
Chapter 3 Multi-I/O Function

The AS-3210 is equipped with the following I/F as a multi-I/O function. Use it according to your system configuration. •Keyboard & PS2 mouse I/F •Floppy disk drive I/F •Hard disk I/F

•Parallel port I/F

•Serial port I/F

• Attached auxiliary terminal

3.1 Keyboard and PS2 mouse

Connect the keyboard to connector J8 (6-pin mini-DIN) and the PS2 mouse to connector J9 (6-pin mini-DIN). Connector J7 (5-pin socket) is an auxiliary keyboard connector for expansion.

For details on using a PS2 mouse, please refer to page 24.

See the service notes.

J8, 9: Connector arrangement and pin assignment
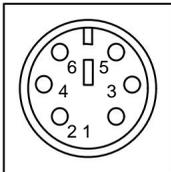
pin	Signal name
1	Data (DATA)
2	NC
3	GND
4	+5V
5	Clock (CLK)
6	NC

J7: Connector arrangement and pin assignment
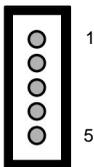
pin	Signal name
1	Clock (CLK)
2	Data (DATA)
3	NC
4	GND
5	+5V

3.2 Floppy Disk Drive I/F Up to two floppy disk drives can

be used (connector: J1). Note that a special I/F cable, as shown in the diagram below,

is required for the floppy disk drives.

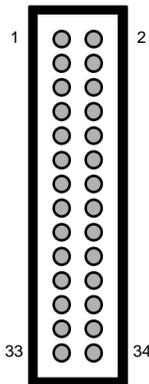Interface cable specifications: **10-pin to**

16-pin cable is twisted
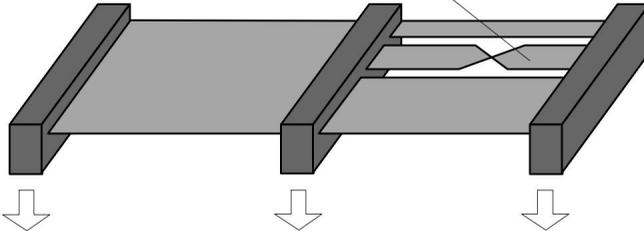
AS-3210: J1　　**Drive B Drive A** * Cable sold

separately by our company 9300064
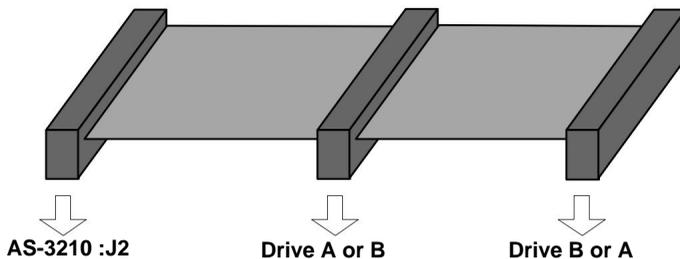
J1: Connector arrangement and pin assignment

Pin	Signal Name		Pin	Signal Name
	GND		2	PWC*/RPM*
1	GND		4	NC
3	GND		6	NC
5	GND		8	INDEX*
7	GND		10	MTR1*
9	GND		12	DRVSEL2*
11	GND		14	DRVSEL1*
13	GND		16	MTR2*
15	GND		18	DIRSEL
17	GND		20	STEP
19	GND		22	WD
21	GND		24	WG
23	GND		26	TRK00*
25	GND		28	WP
27	GND		30	WD
29	GND		32	HDSEL*
31 33	GND		34	DSKCHG*

3.3 Hard Disk Drive I/F Up to two hard disk

drives can be cascaded (connector: J2). Since this IDE is a local bus

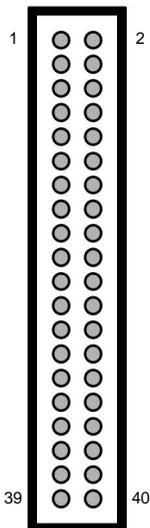connection, it is also possible to use hard disks that support E-IDE.

Interface Cable Specifications

AS-3210 :J2   **Drive A or B**   **Drive B or A**

Note: Drives can be set as master or slave using jumper settings.

*Our separately sold cable 9300066

J2: Connector arrangement and pin assignment

Pin	Signal Name	Pin	Signal Name
	RESET*	2	GND
1	DATA 7	4	DATA 8
3	DATA 6	6	DATA 9
5	DATA 5	8	DATA 10
7	DATA 4	10	DATA 11
9	DATA 3	12	DATA 12
11	DATA 2	14	DATA 13
13	DATA 1	16	DATA 14
15	DATA 0	18	DATA 15
17	GND	20	KEY
19		22	GND
21	(Reserved)	24	GND
23	IOW* IOR*	26	GND
25		28	BALE
27		30	GND
29		32	IOCS16*
31		34	PDIAG*
33		36	A2
35	(Reserved) (Reserved) IRQ ACS0 CS0*	38	
37 39	IDEACT*	40	GND

3.4 Serial Port I/F The AS-3210 is

equipped with two RS232C serial ports with 16-byte FIFO. The serial port

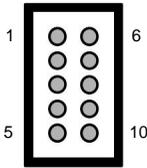connectors are COM1 (9-pin Dsbu (J10)) and COM2 (10-pin header socket).

It is now (J5).

J10 (COM 1): Connector arrangement and pin assignment
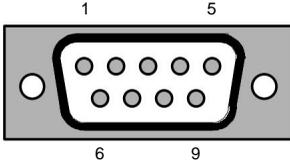
pin	Signal Name	Pin	Signal Name
	DCD	6	DSR
1	RD	7	RTS
2	TD	8	CTS
3	DTR	9	RI
4 5	GND		

J5 (COM 2): Connector Layout & Pin Assignment

pin	Signal Name	Pin	Signal Name
	DCD	6	DSR
1	RD	7	RTS
2	TD	8	CTS
3	DTR	9	RI
4 5	GND	10	NC

Serial port I/O address

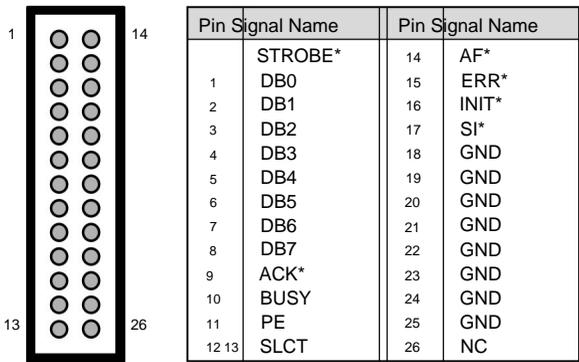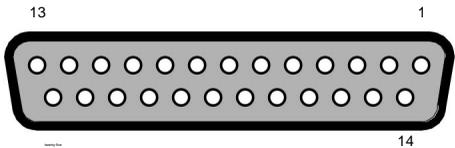|	address	Interrupt Level
COM1	03F8~03FF:H	IRQ4
COM2	02F8~02FF:H	IRQ3

3.5 Parallel Port I/F The AS-3210 is

equipped with one parallel (printer) port channel that supports three modes: SPP,
EPP, and ECP. The connector is a 26-pin header socket (J3), so if you want to use
it with a 25-pin Dsub connector, please use the included conversion cable. For
information on how to change the mode, see Parallel Port Mode

See the Node Settings.

J3: Connector arrangement and pin assignment

Pin	Signal Name		Pin	Signal Name
	STROBE*		14	AF*
1	DB0		15	ERR*
2	DB1		16	INIT*
3	DB2		17	SI*
4	DB3		18	GND
5	DB4		19	GND
6	DB5		20	GND
7	DB6		21	GND
8	DB7		22	GND
9	ACK*		23	GND
10	BUSY		24	GND
11	PE		25	GND
12 13	SLCT		26	NC

25-pin Dsub connector pin layout

Note: Pin assignment is the same as J3

Parallel port I/O address

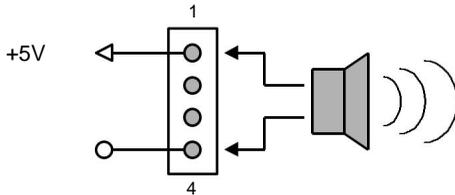| data	Status Control Interrupts	
0378h 0379h 037Ah		IRQ7

3.6 Attached auxiliary terminals

The AS-3210 has four auxiliary terminals on board for additional functions: HD access LED (JP1), speaker output (JP2), keyboard lock & power LED (JP3), and reset switch (JP4). The following diagram shows examples of how to use each auxiliary terminal.
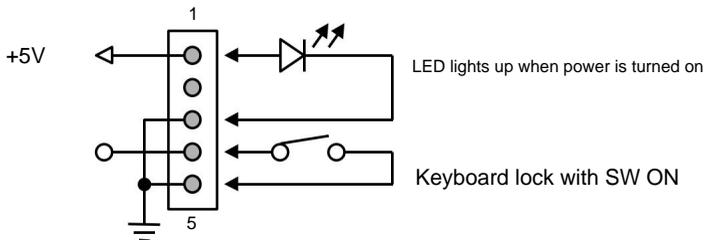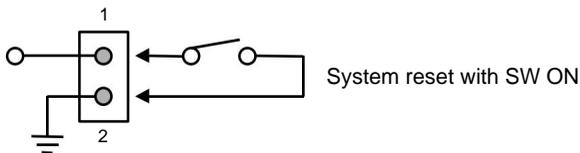
JP1: HD access LED

The LED lights up when the HDD is accessed.
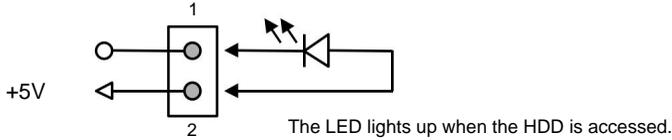
JP2: Speaker output

JP3: Keyboard Lock & Power LED

LED lights up when power is turned on

Keyboard lock with SW ON

JP4: Reset SW

System reset with SW ON

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Chapter 4 Watchdog Timer

The watchdog timer function specifications are as follows:

• Time-out 1.6 Sec

• Use IRQ15 or reset (set by P8)

Jumper post: P8 setting

1-4	2-3	Usage status
OPEN	SHORT	Reset
SHORT	OPEN	IRQ15
OPEN	OPEN	Unused

The usage of the watchdog timer (hereinafter referred to as WDT) is as follows:

ÿ Read address 443H...WDT refresh

ÿ Read address 043H...WDT operation starts

ÿ Read address 443H...WDT refresh

(While the WDT is operating, step ÿ is executed every 1.6 seconds.)

ÿ Read address 043H...WDT operation complete

Program reference example

```
WDT_SW dw 043H                          ;Enable or Disable Address WDT
WDT_REF dw 443H                         ;Refresh Address WDT

MAIN:
           CALL      WDTREF             ;Dummy Refresh
           CALL      WDTGATE            ;Enable WDT
                          ⋮
      <User program within 1.6 seconds>
                          ⋮
           CALL      WDTREF             ;Refresh                    *1
                          ⋮
              <Repeat *1 below>
                          ⋮
           CALL      WDTGATE            ;Disable WDT

END:
WDTGATE:MOV          DX,WDT_SW          ;Enable or Disable WDT PROG.
        IN           AX,DX
        RET
WDTREF :MOV          DX,WDT_REF         ;Refresh WDT PROG.
        IN           AX,DX
        RET
```

Chapter 5 About Flash Disks

The AS-3210 is equipped with a Flash-Disk function that emulates a hard disk/ floppy disk drive. This disk emulates a hard disk drive or floppy disk using emulation software (extended BIOS), and can be used as drive C:/D: (hard disk emulation) or drive A:/drive B: (floppy disk emulation).

When using drive C: or drive A:, the drive will be written to the drive in the same way as a normal disk.

S boot is also possible.

The specifications of the Flash Disk are as follows:

•Memory capacity: 2MB/4MB •Memory used:

SUMSUNG KM29N16000TS (2MB)

SUMSUNG KM29N32000TS (4MB)

•Disk capacity...

When hard disk emulation is selected

1.92MB (2M), 3.84MB (4M)

When floppy disk emulation is selected

1.44MB (2M), 2.88MB (4M) When ROM disk

function is selected •BIOS ...   1.44MB

Yamashita Systems original

•Memory area used: C8000-CFFFF 32KB

•Used I/O area... 1F8 to 1FF: h (fixed)

•Interrupt vector used: 61h, 62h

How to use: Hard disk emulation

Use on drive C: or D:

Floppy Disk Emulation

Or when using ROM-DISK function, use

drive A: or B: •Write lifespan

••••• 10**8 times/block (512 bytes) write

•Retention life: 10 years

5.1 How to use Flash Disk

The Flash-Disk is designed to be used in the same way as a hard disk or floppy
disk. When hard disk emulation is selected, the Flash-Disk is automatically
assigned to the free area of the physical drive C: or D:. For example, if both drives
C: and D: are free (None) in the BIOS settings, the Flash-Disk will be assigned to
drive C:, and both will be used as hard disks.

If a floppy disk is connected, it will be unused.

If you select the simulation (floppy disk, ROM-DISK function), it will be automatically
allocated to a free area on the physical drive A: or B:.

It can be attached.

Detailed instructions are provided on the floppy disk that comes with the product.
Please be sure to read the instructions before use.

(Reference) ¥F_DISK¥README. TXT

Jumper Settings

The Flash disk is enabled/disabled by hardware (jumper: P
9) can be performed. Jumper P7 is used to select the power supply voltage
supplied to the Flash Memory, so please use it as shipped (1-2 shorted). Jumper
post

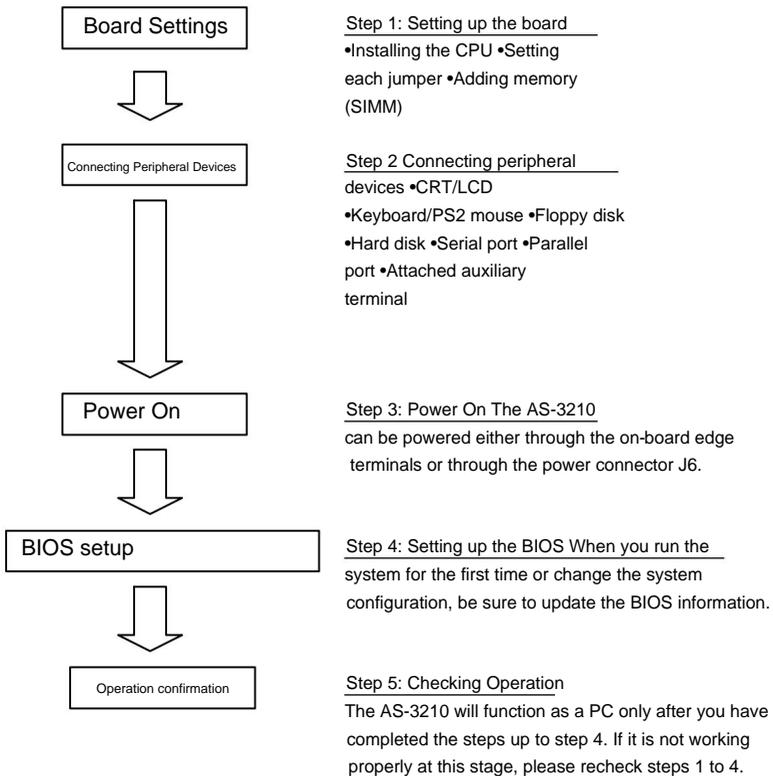P9 setting Open: Enable Short:
Disable

~ Part 2: How to use ~

Part 2 describes the various settings and usage methods required when using the AS-3210.

Chapter 1: Setup

This chapter explains the necessary steps to use the AS-3210 (to start up DOS). It describes various work procedures.

~ Work procedure flow ~

| Board Settings |

Step 1: Setting up the board
•Installing the CPU •Setting each jumper •Adding memory (SIMM)

| Connecting Peripheral Devices |

Step 2 Connecting peripheral devices •CRT/LCD •Keyboard/PS2 mouse •Floppy disk •Hard disk •Serial port •Parallel port •Attached auxiliary terminal

| Power On |

Step 3: Power On The AS-3210 can be powered either through the on-board edge terminals or through the power connector J6.

| BIOS setup |

Step 4: Setting up the BIOS When you run the system for the first time or change the system configuration, be sure to update the BIOS information.

| Operation confirmation |

Step 5: Checking Operation
The AS-3210 will function as a PC only after you have completed the steps up to step 4. If it is not working properly at this stage, please recheck steps 1 to 4.

1.1 Step 1: Setting up the board

Step 1 explains the board settings required before using the AS-3210. The required tasks can be broadly divided into the following three items.

•Installation of CPU •Setting

of each jumper

• Memory (SIMM) expansion

1.1.1 Installing the CPU

The AS-3210 can be equipped with four types of CPU (486SX to DX4).

The CPU is a PGA socket (U3), so please check the position and direction.

Be careful not to make a mistake and make sure to insert it firmly. For the location

and orientation of the CPU socket, refer to Appendix A, Board Layout Diagram.

1.1.2 Jumper settings

Among the jumper setting items of AS-3210, P1 to P6 are the jumper setting items related to the CPU.

and set the jumpers as follows:

Jumper: P1, P2, P3 setting (open unless otherwise specified) Note:

This setting differs depending on the CPU manufacturer. •Intel

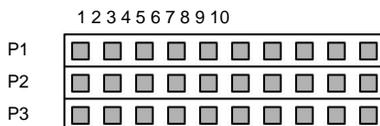series & AMD Enhanced-DX4

P1: 1-2, 3-4, 5-6, 7-8, 9-10 SHORT

•Cyrix series

P2: 1-2, 3-4, 5-6, 7-8, 9-10 SHORT

•AMD, UMC series

P3: 1-2, 3-4, 5-6, 7-8, 9-10 SHORT

Jumper: P1, P2, P3 arrangement

Jumper: P4, P5, P6 settings

Note: This setting varies depending on the CPU type.

	P4	P5	P6
486SX 2-3 OPEN 1-2			
486DX 1-2		2-3	1-2
486DX2 1-2		2-3	1-2
486DX4 1-2		2-3	2-3

1.1.3 Adding memory (SIMM)

The AS-3210 comes pre-installed with 4MB of system memory.

However, there is also one 72-pin SIMM socket available for expansion.

If you need to add more memory, you can install a SIMM up to 32MB.

The specifications of the SIMM that can be installed are as follows:

•SIMM type: 72-pin SIMM

• Bit count: 36 bits or 32 bits

   (However, the AS-3210 does not support memory parity.)

•Access time: 70ns or less

1.2 Step 2 Connecting Peripheral Devices

The following devices can be connected to the AS-3210 according to the system configuration.

•CRT/LCD

•Keyboard & PS2 mouse •Floppy

disk •Hard disk

•Serial port

Parallel port

• Attached auxiliary terminal

Note: For details about each peripheral device, please refer to Chapters 2 and 3 of Part 1.

1.2.1 Notes on PS2 mouse AS-3210

supports PS2 mouse.

When using, please note the following:

Use the mouse driver that comes with the mouse if possible.

* When using the driver that comes with the OS, other drivers

Do not install

Particular attention should be paid to drivers that come with the OS, for example:

If the DOS MOUSE driver is installed, Windows

If you are using Windows 3.1, you may not be able to use the mouse. In this

case, do not install the DOS MOUSE driver.

1.2.2 Parallel port mode setting

The parallel port of the AS-3210 supports three modes: SPP, EPP, and ECP.

Each mode is set using jumpers P12 and P13.

Jumper: P12, P13 settings (for short pins) SPP (standard) mode

P12:1-2,12-11

•EPP mode

P12:2-3,12-11

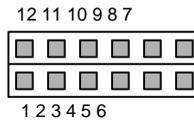•ECP mode (when using DMA channel 1)

P12: 1-2, 11-10, 4-5, 9-8

P13: SHORT

•ECP mode (when using DMA channel 3)

P12: 1-2, 11-10, 5-6, 8-7

P13: SHORT
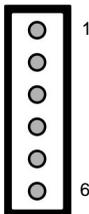
Jumper: P12 layout

12 11 10 9 8 7

1 2 3 4 5 6

1.3 Step 3 Power On The AS-3210

is powered on via the edge terminal on the board or the power connector: J6.

Then, you can turn on the power.

Use only when using the S-3210 alone.

J6: Connector arrangement and pin assignment

pin	Signal name
1	+5V DC +5V DC
2	GND
3	GND
4	GND
5 6	+12V DC

1.4 Step 4: BIOS Setup

When using the AS-3210 for the first time or when the connected peripheral devices
are changed, please set up the BIOS and update the BIOS setting information. The
following

sections explain how to set up the BIOS, showing actual screens. The setting
values described in this document are the same as those at the time of shipping the board.
This is the initial state, so basically use this value.

1.4.1 Starting the BIOS setup

When you turn on the system, the first thing it does is check the memory.
During this time, the message "Hit DEL" will be displayed at the bottom of the
screen, so press the DEL key. The BIOS setup screen will appear as shown below.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
ESC : QUIT	ÿÿÿÿ : Select Item
F10: Save & Exit Setup	(Shift)F2 : Change Color

When this screen appears, select each item and set it.
Among these, <STANDARD CMOS SETUP>, <BIOS FEATURES SETUP>, <CHIPSET
The items <FEATURES SETUP> and <POWER MANAGEMENT SETUP> are the items for actually
changing the settings.

1.4.2 <STANDARD CMOS SETUP>

This item configures the basic configuration of the system.

```
Date (mm:dd:yy) : MON,DEC,25,1995
Time (hh:mm:ss) : 22: 5:40


HARD DISKS TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE
Drive C: None        0     0     0        0       0        0 ----
Drive D: None        0     0     0        0       0        0 ----


Drive A: None                         Base Memory: 640K
Drive A: None                       Extended Memory: 7168K
                                       Other Memory: 384K
Video: EGA/VGA                  ------------------------
Halt On: All Errors                   Total Memory: 8192K

Esc : Quit          ÿÿÿÿ : Select Item          Pu/Pd/+/- : Modify
F1 : Help           (Shift)F2: Change Color
```

Hard disk settings

Type: 1 to 46 have fixed parameters, but the hardware you use

If the parameters of the hard disk do not match, change to Type: 47 User.

Set it and enter the required parameters.

In addition, <IDE HDD AUTO DETEDTION> automatically reads the HDD parameters.

This is also a useful function.

1.4.3 <BIOS FEATURES SETUP>

Please use the contents of this item as shipped (settings in the diagram).

Virus Warning	:Disabled	Video BIOS Shadow	:Enabled
CPU Internal Cache	:Enabled	C8000-CBFFF Shadow	:Enabled
		CC000-CFFFF Shadow	:Disabled
Quick Power On Self TEST	:Enabled	D0000-D3FFF Shadow	:Disabled
Boot Sequence	:A,C	D4000-D7FFF Shadow	:Disabled
Swap Floppy Drive	:Disabled	D8000-DBFFF Shadow	:Disabled
Boot Up Floppy Seek	:Enabled	DC000-DFFFF Shadow	:Disabled
Boot Up Numlock Status: ON		E0000-E3FFF Shadow	:Disabled
Boot Up System Speed	:High	E4000-E7FFF Shadow	:Disabled
		E8000-EBFFF Shadow	:Disabled
Gate A20 Option	:Fast	EC000-EFFFF Shadow	:Disabled
Typematic Rate Setting :Disabled			
Typematic Rate(Chars/Sec):6			
Typematic Delay(Msec): 250			
Security Option	:Setup		
		Esc: Quit ÿÿÿÿ : Select Item	
		F1 : Help Pu/Pd/+/- : Modify	
		F5: Old Valuse (Shift)F2: Color	
		F6: Load BIOS Defaults	
		F7 : Load Setup Defaults	

1.4.4 <CHIPSET FEATURES SETUP>

Please use the contents of this item as shipped (settings in the diagram).

Auto Configuration	:Disabled	Onboard local bus IDE	:Enabled
Decoupled Refresh	:Disabled	IDE Primary Master PIO:Auto	
Relocate 256K/384K	:Disabled	IDE Primary Slave PIO	:Auto
Video BIOS Cacheable	:Enabled		
System BIOS Cacheable	:Enabled		
CHRDY for ISA Master	:Enabled		
Memory Hole At 15MB Addr :Disabled			
Cache Timing Control	:Normal		
DRAM Timing Control	:Normal		
Fast DRAM	:Disabled		
Burst Write	:Disabled		
CPU Write Back Cache	:Disabled		
Set Turbo Pin Function:Turbo			
Set Mouse Lock	:Disabled	Esc: Quit ÿÿÿÿ : Select Item	
		F1 : Help Pu/Pd/+/- : Modify	
		F5: Old Valuse (Shift)F2: Color	
		F6: Load BIOS Defaults	
		F7 : Load Setup Defaults	

1.4.5 <POWER MANAGEMENT SETUP>

This item should only be set when using the power management function.

This function also supports the power management function.

This is effective when using a CPU that supports this feature.

Power Management	:Disabled	IRQ3 Activity	:Primary
Doze Timer	:32 sec	IRQ4 Activity	:Primary
		IRQ5 Activity	:Primary
Sleep Time	:2 min	IRQ7 Activity	:Primary
Sleep Mode	:Suspend	IRQ8 Activity	:Secondary
HDD Power Management	:Disabled	IRQ10 Activity	:Primary
VGA Activity Wakeup	:Disabled	IRQ11 Activity	:Primary
		IRQ12 Activity	:Primary
I/O Activity	:Disabled		
		Esc: Quit ÿÿÿÿ : Select Item	
		F1 : Help Pu/Pd/+/- : Modify	
		F5: Old Valuse (Shift)F2: Color	
		F6: Load BIOS Defaults	
		F7 : Load Setup Defaults	

The main operating states of this function are as follows:

• The CPU itself goes into Low Power mode.

* VGA signal is shut down (screen goes blank temporarily)

• The HDD motor is shut down.

In addition, the conditions for switching from Low Power mode to normal mode are

Each interrupt (IRQ1, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14,

15) occurs, for example, when a keyboard button is pressed or the mouse is

When it works, etc.

Chapter 2 VGA Drivers

The AS-3210 comes with a VGA-related utility disk. This disk contains programs such as the Windows display driver. The README.DOC on the diskette contains explanations of each program, installation methods, and important points to note, so be sure to read it before use. We will explain the most important programs below.

• CHGVGA.EXE - CRT/LCD switching program

When the AS-3210 starts up, it is in simultaneous display mode, displaying both the CRT and LCD. CHGVGA.EXE switches this display mode.

If you are using Windows with a resolution of 800x600 or higher, you must use the CRT display mode.
Please use it in mode.

CHGVGA /S [Enter] (Simultaneous display mode)
CHGVGA /C[Enter] (CRT display mode) CHGVGA /L[Enter]
(LCD display mode)

Chapter 3: Flash Disk Tools

The AS-3210 has a utility tool for flash disks.

These are contained in the \F_DISK directory on the flash disk. README.TXT in the directory contains information on the flash disk's specifications, how to set it up, and how to use the tool programs, so be sure to read it before using the flash disk. The following explains some

particularly important programs.

• FCLEAR.EXE. Flash Clear Tool

　　Clear the flash memory and emulate a flash disk.

 Set the application type.

　　　FCLEAR [Enter] Flash clear,

　　　　hard disk type setting

　　　FCLEAR f [Enter]

　　　　　Flash clear, floppy disk type setting

　　If it is a hard disk type, then use the FDISK and FORMAT tools that come with DOS to make it an accessible volume. If it is a floppy disk type, use the FORMAT tool to initialize it into an accessible volume.

• FD2RFSD.EXE.ROM-DISK creation tool

　　Clear the flash memory and save it to a floppy disk (1.44M)

Copy the entire data to flash memory to create a ROM disk.

vinegar.

 FD2RFSD A: [Enter]

　　The entire A: floppy disk is written to the flash memory. When you reboot, the flash memory will be treated as a ROM-DISK volume (A: or B:).

It will be.

Chapter 4: Precautions when using interrupts on an I/O board

AS-3210 supports PS2 mice.

The data signal line for the mouse and IRQ12 are multi-function pins. Depending on the board, the

interrupt to be used may be set by software rather than by hardware (jumper pins, etc.). (For example,

Ethernet board)

For such boards, set the PS2 mouse function before running the program.

It is necessary to disable it so that IRQ12 can be used.

To do this, change the controller register on the board to disable the PS2 mouse and enable IRQ12.

The specific methodology is to write 11 to I/O port: A8h,

Write 1A to A9h.

Below is a method using the DOS command DEBUG.

```
C:\>DEBUG
O A8 11
O A9 1A
Q
C:ÿÿ
```

With the above settings, PS2 mouse is disabled and IRQ12 is enabled.

I will.

Appendix A: Board Component Layout