ACP-5260

Fault Resilient Chassis

User's Manual

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CHAPTER 1

General Information

Chapter 1 General Information

1.1 Introduction

ACP-5260 is a high performance, high capacity-computing platform which meets a variety of needs including filing, printing, applications, e-mails and Web serving. This powerful computing server includes a full Disk Array storage of high availability features for minimizing the system downtime especially in mission-critical computer telephony application, industrial automation and factory management. A wide range of standard computing peripherals can be integrated with the chassis to meet different application development under mission-critical environment 24 hours a day, 7 days a week.

1.2 Specification

Table 1.1: Specification

Drive Bay		Front-accessible	Internal
	3.5"	6(hot-swap), 1	1
	5.25"	1	
	Slim CD-ROM	1	
RAID	Level	By RAID card	
	Auto Rebuilding	Yes	
Cooling	Fan	Dual (46 CFM/each) for SCSI storage Three (114 CFM/each) on middle Two high pressure browser (25.4 CFM/each) on rear	
Miscellaneous	Rear panel	Two D-SUB 9-pin brackets Dual AC Inlet	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40 ºC (32 ~ 104 ºF)	-40 ~ 60 ºC (-40 ~ 140 ºF)
	Humidity	10 ~ 95%@40ºC, non-condensing	10 ~ 95 %@40ºC, non-condensing
	Vibration (5-500 Hz)	1 Grms	2 G
	Shock	10 G(With 11 msec duration, 1/2 sine wave)	30G
	Acoustic Noise	Less than 52dB sound pressure at 5~28ºC (41~82ºF)	

	Altitude	0 to 3048 m (0 ~ 10,000 ft)
Physical	Dimensions (W x H x D)	482 x 222 x 660 mm (19" x 8.75" x 26")
	Weight	30 kg (66 lb)
Compliance	Safety	CE compliant, UL/cUL approved

1.3 Passive Backplane Options

Table 1.2: Passive Backplane Options		
B/P Model Name	Slot per Segment(ISA/PCI/CPU)	Segment
PCA-6120-0B1	20 ISA	1
PCA-6120P4-0B1	15 ISA/4 PCI/1 CPU	1
PCA-6119P7-0B1	11 ISA/7 PCI/1 CPU	1
PCA-6120P12-0A1	8 ISA/12 PCI/ 1 CPU	1
PCA-6119P17-0B1	1 ISA/17 PCI/ 1 CPU	1
PCA-6120P18-0A1	1 ISA/18 PCI/1 CPU	1

1.4 Power Supply Options

Table 1.3: Power Supply Options					
Model Name	**Watt**	**Input**	**Output**	**Mini-load**	**Safety & MTBF**
1757946005 (for BP version)	460W ATX, PFC	100 ~ 240 Vac (Full-range)	+5V@ 40A +3.3V@30A +12V@27A -12V@1A -5V@0.8A +5Vsb@2A	+5 V @ 5 A +3.3 V @ 1A +12 V @ 2.5 A +5Vsb@0.1A	UL/CSA/TUV /CCC 148,000 hours@25 (Full load)
1757946006 (for MB version)	460W ATX, PFC	100 ~ 240 Vac (Full-range)	+5V@ 40A +3.3V@30A +12V@27A -12V@1A -5V@0.8A +5Vsb@2A	+5 V @ 5 A +3.3 V @ 1A +12 V @ 2.5 A +5Vsb@0.1A	UL/CSA/TUV /CCC 148,000 hours@25 (Full load)

1.5 System Regulation

Table 1.4: System Regulation			
Model Name	With Power Supply	With Backplane	Regulation
ACP-5260BP-40RZ	1757946005	W/O	UL,cUL,CE
ACP-5260MB-40RZ	1757946006	W/O	UL,cUL,CE

1.6 Dimension Diagram

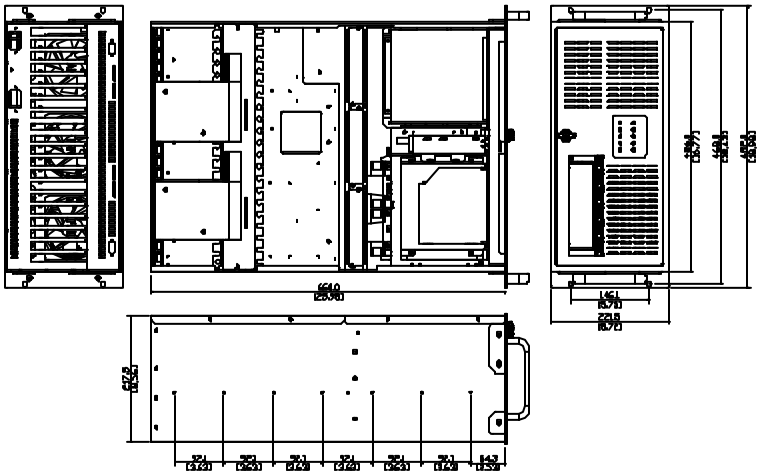

Figure 1-1: Dimention Diagram

1.7 Exploded Diagram

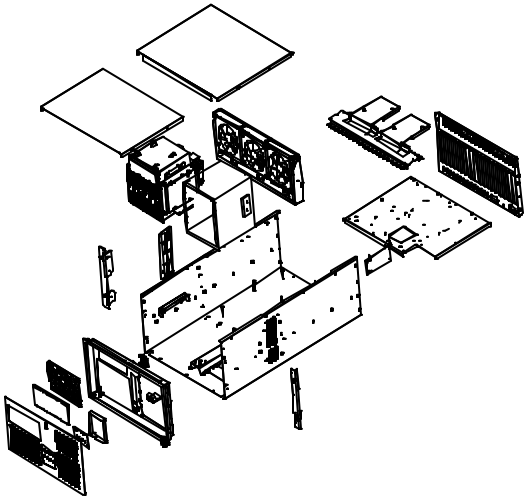

Figure 1-2: Dimension Diagram

CHAPTER 2

System Setup

Chapter 2 System Setup

2.1 System Installation

2.1.1 Attaching the handles

The handles for the front panel are in the accessory box. To install the handles, simply secure them to the front panel with the provided screws.

2.1.2 Removing the top cover

First, remove the chassis cover. There are two parts of top cover, one is located on front, and another is located on rear. The front top cover is fixed to the chassis by two screws on both sides. The rear top cover is fixed to the chassis by three screws on both sides.

2.1.3 Chassis Front and Rear Sections

The front panel switches and I/O behind the door are used for system power, system reset, alarm reset, USB and PS/2 keyboard. A multi-function key lock locks the door cover; user could lock the door cover by key or without key.

Figure 2-1 Front Panel Section

2.1.4 System Reset

Press this switch to reinitialize the system. This is the same as the hardware reset button.

2.1.5 Alarm Reset Switch

Press this switch to suppress or stop an audible alarm. Whenever a fault in the system occurs (e.g. fan failure, rising chassis temperature, backplane voltage problem), an audible alarm is activated. Pressing this switch will cause the alarm to stop.

2.1.6 Momentary Switch

Use this switch and by way of ATX (PS_ON) function to turn on system ATX power.
Please use system shutdown to turn off system power automatic or press momentary switch for a while to turn off system power

2.1.7 USB connector

If you want to connect any USB interface device to the system, you could use this connector.

2.1.8 PS/2 connector

If you are using PS/2 type keyboard, you could use this connector to connect with your keyboard

2.1.9 Rear Bezel Section

The rear section of B/P version includes B/P rear window, 20-slot I/O brackets and dual AC inlets for connecting with power cord.
The rear section of M/B version includes M/B rear window, 7-slot I/O brackets, ATX M/B I/O cover, others are same as B/P version.

Figure 2-2 Rear Bezel Section

2.1.10 Drive Bay & SCSI Storage Installation

The standard drive bay of the ACP-5260 can hold one slim type CD-ROM, one 5.25" and one 3.5" device disk driver. The location of slim type CD-ROM and one 5.25" is on the top of SCIS storage.

a. Remove the front top cover
b. Release two screws of FDD holder first; release four screws of storage cushion and them move storage until you have enough space to take the storage enclosure out from ACP-5260 chassis.
c. Lift off the two power cable which are from system power
d. Insert the drives into their proper locations in the drive bay and secure them with the screws provided.
e. Connect the disk drive power and signal cables.

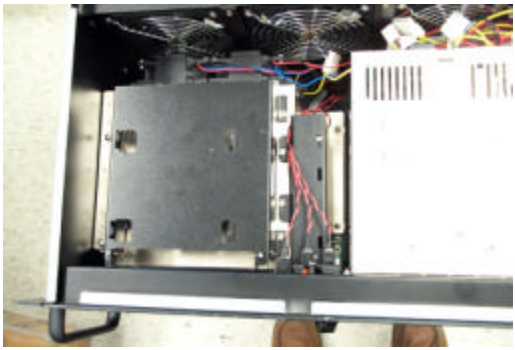

Figure 2-3: Driver Bay and SCSI storage

The SCSI storage holds six 3.5" mobile drawer which is for 1" height SCSI SCA-2 80-pin 3.5" HDD, and with 6-slot SCA backplane. User could install 1" height SCSI SCA-2 80-pin 3.5" HDD into this SCSI storage and use RAID card to complete a RAID system for ACP-5260.

2.1.11 CPU Card and Add-on Cards Install

a. Open the rear top cover and move aside the cardholder, dual browsers by four screws
b. Find out the location of PICMG slot, take out I/O bracket first, and install SBC(CPU card)
c. Connect the 5Vsb and PS_ON cable of power supply to SBC.

Find the location of PCI or ISA slot, take out the I/O bracket first, and

install add-on card.
After the CPU card and all add-on cards to be installed, fix them tightly with backplane holder by screw and fix them well by cardholder.

2.1.12 ACP-5260BP-46R

ACP-5260BP-46R has a momentary switch on the front panel. It is 20-slot backplane version but without backplane and with a front hot-swappable 460W redundant power supply inside**.**

2.1.13 ACP-5260MB-46R

ACP-5260MB-46R has a momentary switch on the front panel and is for ATX M/B form factor. It is without motherboard and with a front hot-swappable power supply inside.

Note:

There is several type of SCSI 3.5" HDD, when in doubt, consult with an experienced technician before SCSI SCA-2 80-pin HDD installation.

a. Open the front door by turning the key lock.
b. Find the latch of 3.5" HDD mobile drawer and push it to the up location.
c. Press down the handle of 3.5" HDD mobile drawer down until the end, then hold the handle and draw it out.
d. Install 1" height SCSI SCA-2 80-pin 3.5" HDD by four screws.
e. Return and push the mobile drawer within HDD toward to the SCSI storage until the handle of mobile drawer is moving up.
f. Push the handle of mobile drawer until the end, and then press the latch to the down location.

Before starting the installation process, be sure to shut down all power from the chassis. Do this by turning off the power switch, and unplugging the power cord from the power outlet. When in doubt, consult with an experienced technician.

2.2 System LED Indicators

Table 2.1: System Status LED			
LED	Description	Red	Green or Orange
PWR	System Redundant Power	Abnormal (RPS failure)	Normal
HDD	Hard Drive activity	N/A	Data access
TEMP	Chassis Temperature	Abnormal (chassis temperature is over default 50°C)	Normal
FAN	System Cooling Fans	Abnormal (system cooling fan failure)	Normal

When the PWR LED turns red, it indicates the redundant power supply is failure. To stop the alarm buzzer, press the Alarm Reset button. Please check out the redundant power supply right away and replace failure power supply module, then PWR LED will turns green after replacement with good one.
When the FAN LED turns red, it indicates the system cooling fan got failure. An audible alarm is also activated. To stop the alarm buzzer, press the Alarm Reset button then replace the fan immediately. FAN LED will turns green if all of system cooling fans are working fine.
If the TEMP LED is red, the system detects rising temperature inside the chassis. An audible alarm is activated. To stop the alarm buzzer, press the Alarm Reset button. Inspect the system environment and fan filter immediately. Make sure airflow inside the chassis is smooth and not blocked by dust or other particles. If problem persists, consult an experienced technician.

2.2.1 System Power LED

The Power Status LED indicates the status of the system power voltage signals.

Table: 2.2: System Power LED			
LED	Description	Light	No light
+3.3V	+3.3Voltage output	Normal	No output
+5V	+ 5Voltage output	Normal	No output

+12V	+12Voltage output	Normal	No output
-5V	- 5Voltage output	Normal	No output
-12V	-12Voltage out put	Normal	No output

When a LED fails to light, it indicates a problem with one of the voltage output. An audible alarm is sounded. Check to make sure that the power supply is working fine for each voltage output. If problem persists, consult an experienced technician.

2.3 SCSI Storage

Note:
The SCSI storage is within the system data; please have to be very carefully to avoid damage the system data if you have to take the SCSI storage out from chassis. When in doubt, consult with an experienced technician.

2.3.1 RAID System Installation

a. Open the front top cover and to find out the location of storage enclosure. Please prepare a 68-pin U-160 SCSI cable before RAID system installation.
b. This 68-pin U-160 SCSI cable, one end is connected with SCSI storage of ACP-5260, the other end is connected with your SCSI RAID card or SCSI RAID controller
c. If you are going to install SCSI RAID card, please install up to six SCSI SCA-2 80pin HDD into SCSI storage of ACP-5260 and follow up the RAID card instruction to implement your RAID system. If you are going to install SCSI RAID controller please install up to six SCSI SCA-2 80-pin HDD into SCSI storage of ACP-5260 and follow up the SCSI RAID controller to implement your RAID system.
d. Maybe you need an extra SCSI cable to connect between “external SCSI connector of RAID card” and “other host”.

Table 2.3: HDD PWR LED and Status LED					
LED	Description	Green	Blue	Red	Blue & Red
PWR	Power of HDD	Off for no HDD or No System Power On for with HDD	N/A	N/A	N/A
Status	Hard Drive activity	N/A	Data access	HDD failure	Data rebuild or construction

2.3.2 Cabling of SCSI Storage

There are three power cables of power supply, one SCSI cable from RAID card and two power cables of fan connected between this SCSI storage and ACP-5260 system. Please do remember to plug out those cable when you have to take out SCSI storage from ACP-5260 and to plug in those cable well before you install SCSI storage into ACP-5260.

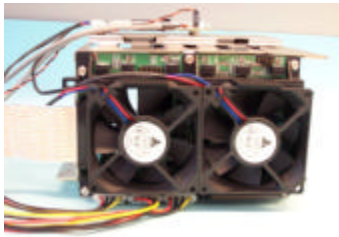

Figure 2-4: Cabling of SCSI Storage

2.4 Cooling Fan & Filter

There are seven system-cooling fans located inside ACP-5260. Two cooling fan are for SCSI storage which we mentioned on chapter 2.3 already. Three are located on the middle of the chassis. Two are located on the rear of chassis. Those cooling fans are very easy to maintain since all of these five cooling fan are swappable.

When any one of cooling fan breaks down, the system sounds a continuous alarm. To disable the alarm, press the Alarm Reset Switch on the front panel and replace the failure fan immediately.

Behind the front door is with the filter. If the filter is blocked with dust or other particles, please clean it or replace with a new filter.

CHAPTER 3

Alarm Board

Chapter 3 Alarm Board

The alarm board is located on the side of chassis. It gives an audible alarm when:

a. Any power supply module of redundant power supply got failure.
b. Any one of the SCSI storage cooling fans and system cooling fans is defective.
c. Temperature inside the chassis rises over 50°C(default setting).
d. A problem occurs in one of the power voltage output.

The detailed layout and specification of the alarm board are as follows:

3.1 Alarm board layout

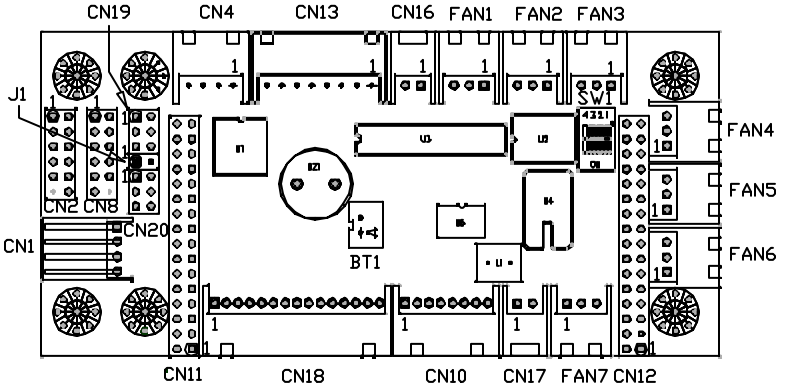

Figure 3-1: Alarm Board Layout

3.2 Alarm board Specification

3.2.1 Input Signals

- Input power +5V, +12V from CN1
- 7 FAN connectors (FAN1~FAN7, Pin 1: GND, Pin 2: +12V, Pin 3: FAN Signal)
- One thermal board connector (CN4, it can connect up to 8 thermal boards in a roll)
- One power good input (CN16)
- One alarm reset input (CN17)

- One voltage signal connector (CN13, connect from PSU or backplane, includes ±12V, ±5V, 3.3V)
- One ATX power connector (CN19 connects from CPU card, CN20 connects to chassis)
- One system reset connector (CN 19 connect from CPU card, CN20 connects to chassis)
- One Hard Disk LED connector (CN19 connects from CPU card)

3.2.2 Output Signals

- One LED board connector (CN18)
- One LCM board connector (CN10)
- SNMP daughter board connector (CN11 & CN12 connect to SNMP-1000 main board)
- One Buzzer output(J1)
- ATX power switch connector (CN19 connects from CPU card, CN20 connects to chassis)
- System reset connector (CN 19 connect from CPU card, CN20 connects to chassis)

3.2.3 Other Interfaces

- One pair of Watch dog input/output signals(CN20)
- One pair of I^2C Bus signals (DATA and CLK, CN19)
- One LAN connector (CN2)
- One COM connector (CN8)
- One Battery pack connector(BT1)

3.2.4 Pin Definition of Alarm Board

Table 3-1: CN1: Ext Pwr, mini 4 Pin conn	
Pin 1	+12V, 2A maximum
Pin 2	GND
Pin 3	GND
Pin 4	+5V, 2A maximum

Table 3-2: CN2 10/100M LAN Connector	
Pin 1	SPLED
Pin 2	TERMPLANE
Pin 3	RX+
Pin 4	RX-
Pin 5	GND
Pin 6	LVCC
Pin 7	TX+
Pin 8	TX-
Pin 9	LILED
Pin 10	TERMPLANE
Pin 11	N/A
Pin 12	NC

Table 3-3: CN4 : I2C Sensor (LM75) Conn	
Pin 1	+5V
Pin 2	Sensor I2C bus clock
Pin 3	Sensor I2C bus data
Pin 4	GND

Table 3-4: CN8 : RS-232 Connector	
Pin 1	DCD
Pin 2	RX
Pin 3	TX
Pin 4	DTR
Pin 5	GND
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS
Pin 9	RI
Pin 10	NC
Pin 11	NC
Pin 12	N/A

Table 3-5: CN10 : LCM Display Board Conn	
Pin 1	LCM I2C bus data
Pin 2	LCM I2C bus clock
Pin 3	+12V
Pin 4	GND
Pin 5	+5V
Pin 6	+5V
Pin 7	Diagnostic LED
Pin 8	GND

Table 3-6: CN11:SNMP-1K Dhtr Bd Conn (L)	
Pin 1	SIN
Pin 2	SOUT
Pin 3	CTS#
Pin 4	DCD#
Pin 5	RTS#
Pin 6	DTR#
Pin 7	DSR#
Pin 8	ID 0
Pin 9	ATX ON
Pin 10	DO 4
Pin 11	GND
Pin 12	DO 3

Pin 13	Watchdog IN
Pin 14	DO 2
Pin 15	Watchdog OUT
Pin 16	DO 1
Pin 17	SPLED
Pin 18	NC
Pin 19	LILED
Pin 20	NC
Pin 21	GND
Pin 22	NC
Pin 23	TX+
Pin 24	NC
Pin 25	TX-
Pin 26	NC
Pin 27	RX+
Pin 28	NC
Pin 29	RX-
Pin 30	NC
Pin 31	TERMPLANE
Pin 32	NC

Table 3-7: CN12:SNMP-1K Dhtr Bd Conn (R)	
Pin 1	NC
Pin 2	NC
Pin 3	Power Good A
Pin 4	NC
Pin 5	NC
Pin 6	NC
Pin 7	Diagnostic LED
Pin 8	FAN 1
Pin 9	GND
Pin 10	FAN 2
Pin 11	GND
Pin 12	FAN 3
Pin 13	VCC
Pin 14	FAN 4
Pin 15	VCC
Pin 16	FAN 5
Pin 17	VCC
Pin 18	FAN 6
Pin 19	BEEP
Pin 20	FAN 7
Pin 21	5VSB
Pin 22	NC
Pin 23	-5V

Pin 24	NC
Pin 25	+5V
Pin 26	B_SCLK
Pin 27	+3.3V
Pin 28	B_SDAT
Pin 29	-12V
Pin 30	T_SCLK
Pin 31	+12V
Pin 32	T_SDAT

Table 3-8: CN13 : Voltage Detect Input Conn	
Pin 1	5VSB
Pin 2	GND
Pin 3	GND
Pin 4	-5V
Pin 5	+5V
Pin 6	+3.3V
Pin 7	-12V
Pin 8	+12V

Table 3-9: CN16 : 4 bit Power Good Input	
Pin 1	Power GOOD A
Pin 2	GND

Table 3-10: CN17 : Alarm Reset	
Pin 1	Reset
Pin 2	GND

Table 3-11: CN18 : LED Board Connector	
Pin 1	GND
Pin 2	+5V Signal
Pin 3	+12V Signal
Pin 4	-5V Signal
Pin 5	-12V Signal
Pin 6	HDD Signal
Pin 7	Power Good Signal
Pin 8	Power Fail Signal
Pin 9	Temp. Good Signal
Pin 10	Temperature Fail Signal
Pin 11	Fan Good Signal
Pin 12	FAN Fail Signal
Pin 13	NC
Pin 14	+3.3V Signal
Pin 15	5VSB Signal

Table 3-12: CN19:Conn bank from CPU card	
Pin 1	HDD LED Signal
Pin 2	ATX soft power switch
Pin 3	I2C Clock
Pin 4	ATX soft power switch(-)
Pin 5	I2C Data
Pin 6	System Reset Signal

Table 3-13: CN20 : Connector bank to Chassis	
Pin 1	ATX Momentary switch
Pin 2	ATX Momentary switch(-)
Pin 3	GND
Pin 4	System Reset Signal
Pin 5	Watch Dog IN
Pin 6	Watch Dog OUT

Table 3-14: J1 : External Speaker	
Pin 1	Buzzer
Pin 2	+5V

3.3 Switch 1 & Fan Number Settings

Table 3.15: Switch 1 for Fan Number Settings				
FAN NUMBER	SW1- 1	SW1 - 2	SW1 - 3	SW1 - 4
0	OFF	OFF	OFF	ON
1	ON	OFF	OFF	ON
2	OFF	ON	OFF	ON
3	ON	ON	OFF	ON
4	OFF	OFF	ON	ON
5	ON	OFF	ON	ON
6	OFF	ON	ON	ON
7	ON	ON	ON	ON

3.4 Thermal Sensor, LED, USB and K/B

3.2.5 Pin Definition of thermal sensor

Table 3.16: CN1/2: I2C Sensor (LM75) Conn	
Pin 1	+5V
Pin 2	Sensor board I2C bus clock

Pin 3	Sensor I2C bus data
Pin 4	GND

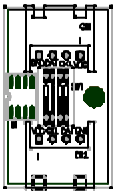

Figure 3-2: Thermal Sensor Layout

3.2.6 Pin Definition of LED indicator

There is a system LED indicator on the front door. See Table 3.17 for the connection and pin definition as follows:

Table 3.17: CN1: LED Board Connector			
Pin 1	GND	Pin 9	Temperature Good Signal
Pin 2	+5V Signal	Pin 10	Temperature Fail Signal
Pin 3	+12V Signal	Pin 11	Fan Good Signal
Pin 4	-5V Signal	Pin 12	FAN Fail Signal
Pin 5:	-12V Signal	Pin 13	HDD 2
Pin 6	HDD 1	Pin 14	+3.3V Signal
Pin 7	Power Good Signal	Pin 15	Option
Pin 8	Power Fail Signal		

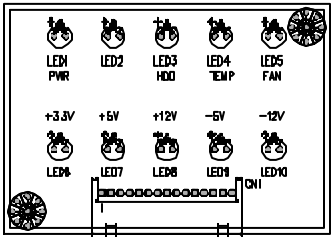

Figure 3-3: LED Layout

3.2.7 Pin def of USB, PS/2 KB interface board

The USB and PS/2 keyboard are behind the door.

Table 3.18: CN1 ~ CN4 Pin Definition	
CN1	Internal Keyboard Connector
Pin 1	KBCK
Pin 2	KBDT
Pin 3	N/C
Pin 4	GND
Pin 5	KBVCC
CN2	Internal USB Connector
Pin 1	USBV0
Pin 2	USBD0-
Pin 3	USBD0+
Pin 4	USBG0
Pin 5	GND
Pin 6	USBV1
Pin 7	USBD1
Pin 8	USBD1+
Pin 9	USBG1
CN3	PS/2 Keyboard Connector
CN4	USB Connector

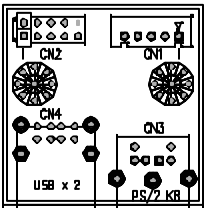

Figure 3-4: USB, PS/2 KB Layout

CHAPTER 4

SCSI Storage

Chapter 4 SCSI Storage

4.1 6-slot SCA-2 80-pin BP Layout

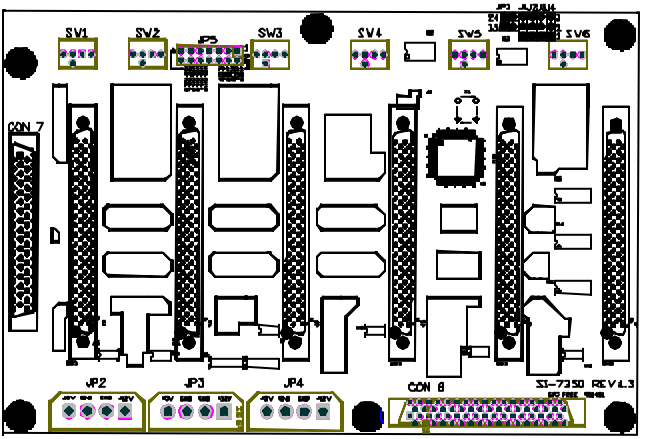

Figure 4-1: SCA Backplane Layout

4.1.1 Pin definition of SCA Backplan

Table 4.1: J1: Terminator Enable/Disable	
Enable	Pin 2-3 short
Disable	Pin 1-2 short

Table 4.2: J2: SAF-TE Chip ID Selection	
ID 6	Pin 2-3 short
ID 8	Pin 1-2 short

Table 4.3: J3/J4: SAF-TE Enable/Disable	
Enable	Pin 2-3 short
Disable	Pin 1-2 short

Table 4.4: JP1: HDD Spin up Option		
Spin up when power is applied	Pin 1-2 open	Pin.3-4 open
Spin up after delay	Pin 1-2 short	Pin 3-4 open
Spin up start command reserved	Pin 1-2 open	Pin 3-4 short

Table 4.5: JP2~ JP4	
JP2, JP3, JP4	+5V, GND, GND, +12V

Table 4.6: JP5	
Pin 1	HDD FAIL 0
Pin 2	ALED 0
Pin 3	HDD FAIL 1
Pin 4	ALED 1
Pin 5	HDD FAIL 2
Pin 6	ALED 2
Pin 7	HDD FAIL 3
Pin 8	ALED 3
Pin 9	HDD FAIL 4
Pin 10	ALED 4
Pin 11	HDD FAIL 5
Pin 12	ALED 5
Pin 13	GND
Pin 14	GND

Table 4.7: SW1, SW2, CON 7, CON 8	
SW1 ~ SW2	ID selection from ID0 ~ ID15
CON 7	68-pin Ultra 160 SCSI Connector (default using)
CON 8	68-pin Ultra 160 SCSI Connector (for extension)

4.2 SAF-TE

SAF-TE stands for SCSI Accessed Fault-Tolerant Enclosure. The SCA backplane built-in GEM 318 which support SAF-TE provide a standard, non-proprietary way for third party disk and RAID controllers to be fully integrated with peripheral packing that supports status signals (LED's, audible alarm, LCD, etc), hot-swapping of hard drivers, and monitoring of enclosure components , such as disks, power supplies, temperature, fans, etc.). For ACP-5260, the GEM 318 checks the disks status only, for others as fans, temperature, power supply and voltage are monitored by alarm board.

4.3 RAID

RAID stands for Redundant Array of Independent/Inexpensive Disks. ACP-5260 could be integrated with SCSI RAID card, such as AMI(LSI), Adaptec, Intel and Mylex RAID card to perform Disk Array operations. The SCSI RAID controller is also a suitable selection to integrate into ACP-5260 but please be careful the length limitation. The max length of your RAID controller has to be under “200mm” to install into ACP-5260.

APPENDIX A

Safety Instructions

Appendix A Safety Instructions

A1 Safety Instructions

1. Read these safety instructions carefully.

2. Keep this User's Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.

7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.

8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

12. Never pour any liquid into an opening. This may cause fire or electrical shock.

13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

14. If one of the following situations arises, get the equipment checked by service personnel:

    a. The power cord or plug is damaged.

    b. Liquid has penetrated into the equipment.

    c. The equipment has been exposed to moisture.

d. The equipment does not work well, or you cannot get it to work according to the user's manual.

e. The equipment has been dropped and damaged.

f. The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70dB(A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

16. Any insulation on conductors inside EQUIPMENT which connect ACCESSIBLE METAL PARTS or other PROTECTIVELY EARTHED parts with a protective functio to the PROTECTIVE EARTH TERMINAL shall be identified by the colrs green and yellow at lease at the termination of the conductors.

17. CAUTION: The computer is provided with a Battery-powered Real-Time Clock Circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent typed recommended by the manufacturer. Discard use batteries according to the manufacturer's instructions.

18. The computer is provided with appropriate safety standards including lec 60826.

19. Install the computer. Before your begin make sure the Green/Yellow wire reliable connection between metal part of computer and earthing of final system.