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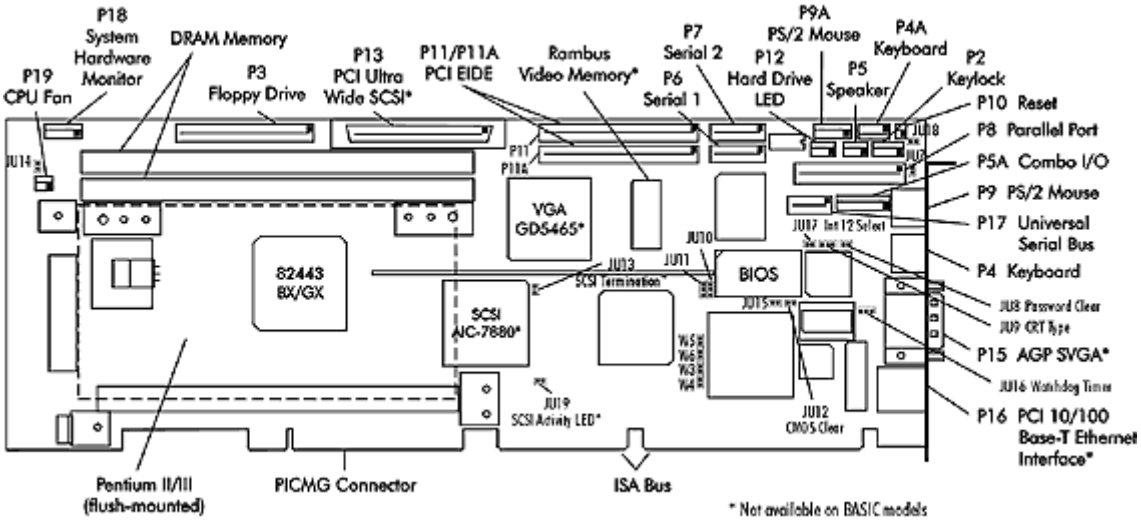
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Technical Information – Jumpers, Connectors and Memory
P2BX/P2GX (5649-xxx) System Host Board

Layout Diagram



Jumpers & LEDs

The setup of the configuration jumpers on the SHB is described below. An asterisk (*) indicates the default value of each jumper.

NOTE: For two-position jumpers (3-post), "RIGHT" is toward the bracket end of the board; "LEFT" is toward the memory sockets.

JU7 COMBO I/O (P5A) SPEAKER CONNECT

(Also refer to JU18 - Combo I/O Reset Connect.)

INSTALL= Connect speaker data signal to pin 8 of Combo I/O connector (P5A) *

REMOVE= Disconnect

JU8 Password Clear

Install for one power-up cycle to reset the password to the default (null password).
Remove for normal operation. *

JU9 CRT TYPE SELECT

LEFT = Monochrome
RIGHT = Color *

JU10/11 SYSTEM FLASH ROM OPERATIONAL MODES

The Flash ROM has two programmable sections: the Boot Block for "flashing" in the BIOS and the Main Block for the executable BIOS and PnP parameters. Normally only the Main Block is updated when a new BIOS is flashed into the system.

	JU10	JU11
Write Protect	Top	Top
Normal PnP (Program Main Block)	Bottom *	Top *
Program All (Boot and Main)	Bottom	Bottom

JU12 CMOS Clear

INSTALL = Clear CMOS

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REMOVE = Operate *

NOTE: The CMOS Clear jumper works on power-up. To clear the CMOS, power down the system, install the jumper, then turn the power back on. CMOS is cleared during the POST routines. Then power down the system again and remove the jumper before the next power-up.

JU13 SCSI TERMINATION ENABLE

(Not available on BASIC model)

INSTALL= Disable on-board active termination for SCSI interface

REMOVE= Enable *

JU14 FAN SPEED MONITOR

This jumper *must* be removed (disabled).

JU15 3.3V MONITOR ENABLE

INSTALL = Enable 3.3V monitor
REMOVE = Disable monitor *

NOTE: JU15 enables the 3.3V monitor, which monitors the 3.3V power plane of the backplane. This voltage is routed to the SBC via the PICMG® connector. The monitor generates a RESET to the SBC if 3.3V is below tolerance. If your system does *not* supply 3.3V to the backplane, this jumper *must* be removed (disabled).

JU16 WATCHDOG TIMER

LEFT = Normal reset *
RIGHT = Enable watchdog

JU17 INTERRUPT 12 (IRQ12) SELECT

INSTALL = IRQ12 dedicated to PS/2 mouse *
REMOVE = IRQ12 available for system use

JU18 COMBO I/O (P5A) RESET CONNECT

(Also refer to JU7 = Combo I/O Speaker Connect.)

INSTALL= Connect reset data signal to pin 1 of Combo I/O connector (P5A) *

REMOVE= Disconnect

JU19 SCSI ACTIVITY LED ENABLE

(not available on BASIC model)

INSTALL= Light the hard drive LED for SCSI drive activity*

REMOVE= No SCSI drive (i.e., the SCSI controller is not being used)

CPU SPEED JUMPERS

There are four jumpers (W3, W4, W5 and W6) which must be set correctly to allow the SBC to take full advantage of the speed of the Pentium II/III microprocessor. These jumpers must be set as specified below.

CPU	Synthesizer	Jumpers			
Speed	**Frequency**	**W4***	**W3**	**W6**	**W5**
850MHz	100MHz	In	Out	In	Out
800MHz	100MHz	Out	In	In	Out
750MHz	100MHz	Out	Out	Out	In
700MHz	100MHz	Out	In	Out	In
650MHz	100MHz	Out	Out	In	In
600MHz	100MHz	Out	In	In	In

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550MHz	100MHz	In	Out	Out	Out
500MHz	100MHz	In	In	Out	Out
450MHz	100MHz	In	Out	In	Out
400MHz	100MHz	In	In	In	Out
350MHz	100MHz	In	Out	Out	In
333MHz	66MHz	In	In	Out	Out
300MHz	66MHz	In	Out	In	Out
266MHz	66MHz	In	In	In	Out

NOTE: In revision D-D-02 and earlier, W4 was hard-wired in an "In" position

ETHERNET LEDS AND CONNECTORS

The Ethernet interface has two LEDs for status indication and an RJ-45 network connector.

LED/Connector		Description
Link/Activity LED		Green LED which indicates the link status.
	Off =	The Ethernet interface did not find a valid link on the network connection. Transmit and receive are not possible.
	On = (solid)	The Ethernet interface has a valid link on the network connection and is ready for normal operation. The Speed LED identifies connection speed.
	On = (flashing)	Indicates network transmit or receive activity.
Speed LED		Amber LED which identifies connection speed.
	Off =	Indicates a 10Mb/s connection.
	On =	Indicates a 100Mb/s connection.
RJ-45 Network Connector		The RJ-45 network connector requires a category 5 (CAT5) unshielded twisted-pair (UTP) 2-pair cable for a 100-Mb/s network connection or a category 3 (CAT3) or higher UTP 2-pair cable for a 10-Mb/s network connection.

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Connectors

NOTE:
Pin 1 on the connectors is indicated by the square pad on the PCB.

P2 - KEYLOCK CONNECTOR

5 pin single row header, Amp #640456-5

PIN	SIGNAL
1	LED Power
2	Key
3	Gnd
4	Keylock Data
5	Gnd

P3 - FLOPPY DRIVE CONNECTOR

34 pin dual row header,
Robinson Nugent #IDH-34LP-S3-TR

PIN	SIGNAL	PIN	SIGNAL
1	Gnd	2	N-RPM
3	Gnd	4	NC
5	Gnd	6	D-Rate0
7	Gnd	8	P-Index
9	Gnd	10	N-Motoron 1
11	Gnd	12	N-Drive Sel2
13	Gnd	14	N-Drive Sel1
15	Gnd	16	N-Motoron 2
17	Gnd	18	N-Dir
19	Gnd	20	N-Stop Step
21	Gnd	22	N-Write Data
23	Gnd	24	N-Write Gate
25	Gnd	26	P-Track 0
27	Gnd	28	P-Write Protect
29	Gnd	30	N-Read Data
31	Gnd	32	N-Side Select
33	Gnd	34	Disk Chng

P11 - PRIMARY IDE HARD DRIVE CONNECTOR

40 pin dual row header,
Robinson Nugent #IDH-40LP-S3-TR

PIN	SIGNAL	PIN	SIGNAL
1	Reset	2	Gnd
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Gnd	20	NC
21	DRQ 0	22	Gnd
23	IOW	24	Gnd
25	IOR	26	Gnd
27	IORDY	28	SELPDP
29	DACK 0	30	Gnd
31	IRQ 14	32	NC
33	Add 1	34	Gnd
35	Add 0	36	Add 2
37	CS 1P	38	CS 3P
39	IDEACTP	40	Gnd

P11A - SECONDARY IDE HARD DRIVE CONNECTOR

40 pin dual row header,
Robinson Nugent #IDH-40LP-S3-TR

PIN	SIGNAL	PIN	SIGNAL
1	Reset	2	Gnd
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12

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Connectors (Continued)

P4 - KEYBOARD CONNECTOR

6 pin mini DIN, Kycon #KMDG-6S-BS-PS

PIN	SIGNAL
1	Kbd Data
2	Reserved
3	Gnd
4	Kbd Power (+5V fused) with self-resetting fuse
5	Kbd Clock
6	Reserved

P4A - KEYBOARD HEADER

5 pin single row header, Amp #640456-5

PIN	SIGNAL
1	Kbd Clock
2	Kbd Data
3	Key
4	Kbd Gnd
5	Kbd Power (+5V fused) with self-resetting fuse

P5 - SPEAKER PORT CONNECTOR

4 pin single row header, Amp #640456-4

PIN	SIGNAL
1	Speaker Data
2	Key
3	Gnd
4	+5V

P5A - COMBO I/O CONNECTOR

8 pin single row header, Amp #640456-8

PIN	SIGNAL
1	Reset (See JU18 in *Configuration Jumpers* above.)
2	Gnd
3	NC
4	Kbd Clock
5	Kbd Data

13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Gnd	20	NC
21	DRQ 1	22	Gnd
23	IOW	24	Gnd
25	IOR	26	Gnd
27	IORDY	28	SELPDS
29	DACK 1	30	Gnd
31	IRQ15	32	NC
33	Add 1	34	Gnd
35	Add 0	36	Add 2
37	CS 1S	38	CS 3S
39	IDEACTS	40	Gnd

P12 - HARD DRIVE LED CONNECTOR

4 pin single row header, Amp #640456-4
(This connector is used for both IDE and SCSI drives. See JU19 in the *Jumpers* section.)

PIN	SIGNAL
1	+5V Pullup
2	Light
3	Light
4	+5V Pullup

P13 - PCI ULTRA3 SCSI CONTROLLER CONNECTOR

(not available on BASIC models)
50/68 high density SCSI connector, Amp #749069-7

1	Gnd	35	SCZDB12
2	Gnd	36	SCZDB13
3	Gnd	37	SCZDB14
4	Gnd	38	SCZDB15
5	Gnd	39	SCZDBPH
6	Gnd	40	SCZDB0
7	Gnd	41	SCZDB1

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6	Kbd Lock Data
7	Kbd Power (+5V fused) with self-resetting fuse
8	Speaker Data

Connectors (Continued)

P6 - SERIAL PORT 1 CONNECTOR

10 pin dual row header, 3M #30310-6002HB

PIN	SIGNAL	PIN	SIGNAL
1	Carrier Detect	2	Data Set Ready-I
3	Receive Data-I	4	Request to Send-O
5	Transmit Data-0	6	Clear to Send-I
7	Data Terminal Ready-0	8	Ring Indicator-I
9	Signal Gnd	10	NC

P7 - SERIAL PORT 2 CONNECTOR

10 pin dual row header, 3M #30310-6002HB

PIN	SIGNAL	PIN	SIGNAL
1	Carrier Detect	2	Data Set Ready-I
3	Receive Data-I	4	Request to Send-O
5	Transmit Data-0	6	Clear to Send-I
7	Data Terminal Ready-0	8	Ring Indicator-I
9	Signal Gnd	10	NC

P8 - PARALLEL PORT CONNECTOR

26 pin dual row header, 3M #30326-6002HB

PIN	SIGNAL	PIN	SIGNAL
1	Strobe	2	Auto Feed XT
3	Data Bit 0	4	Error
5	Data Bit 1	6	Init
7	Data Bit 2	8	Slct In
9	Data Bit 3	10	Gnd
11	Data Bit 4	12	Gnd
13	Data Bit 5	14	Gnd
15	Data Bit 6	16	Gnd
8	Gnd	42	SCZDB2
9	Gnd	43	SCZDB3
10	Gnd	44	SCZDB4
11	Gnd	45	SCZDB5
12	Gnd	46	SCZDB6
13	Gnd	47	SCZDB7
14	Gnd	48	SCZDBP
15	Gnd	49	Gnd
16	Gnd	50	Gnd
17	TERMPWR	51	TERMPWR
18	TERMPWR	52	TERMPWR
19	NC	53	NC
20	Gnd	54	Gnd
21	Gnd	55	SCZATN
22	Gnd	56	Gnd
23	Gnd	57	SCZBSY
24	Gnd	58	SCZACK
25	Gnd	59	SCZRST
26	Gnd	60	SCZMSG
27	Gnd	61	SCZSEL
28	Gnd	62	SCZCD
29	Gnd	63	SCZREQ
30	Gnd	64	SCZIO
31	Gnd	65	SCZDB8
32	Gnd	66	SCZDB9
33	Gnd	67	SCZDB10
34	WIDEPS	68	SCZDB11

P15 - PCI SVGA INTERFACE CONNECTOR

(not available on BASIC models)
15 pin VGA connector, Amp #748390-5

PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL
1	Red	6	Gnd	11	NC
2	Green	7	Gnd	12	EEDI
3	Blue	8	Gnd	13	HSYNC

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17	Data Bit 7	18	Gnd
19	ACK	20	Gnd
21	Busy	22	Gnd
23	Paper End	24	Gnd
25	Slct	26	NC

Connectors (Continued)

P9 - PS/2 MOUSE CONNECTOR

6 pin mini DIN, Kycon #KMDG-6S-BS-PS

PIN	SIGNAL
1	Ms Data
2	Reserved
3	Gnd
4	Kbd Power (+5V fused) with self-resetting fuse
5	Ms Clock
6	Reserved

P9A - PS/2 MOUSE HEADER

6 pin single row header, Amp #640456-6

PIN	SIGNAL
1	Ms Data
2	Reserved
3	Kbd Gnd
4	Kbd Power (+5V fused) with self-resetting fuse
5	Ms Clock
6	Reserved

P10 - EXTERNAL RESET CONNECTOR

2 pin header, Amp #640456-2

PIN	SIGNAL
1	External Reset In (Low Active)
2	Gnd

4	NC	9	+5V	14	VSYNC
5	Gnd	10	Gnd	15	EECS

P16 - PCI 10/100BASE-T ETHERNET CONNECTOR

(not available on BASIC models)
8 pin shielded RJ-45 connector, Molex #43202-8110

PIN	SIGNAL
1	TD+
2	TD-
3	RX+
4	NC
5	NC
6	RX-
7	NC
8	NC

P17 - UNIVERSAL SERIAL BUS (USB) CONNECTOR

8 pin dual row header, Molex #702-46-0821
(+5V fused with self-resetting fuses)

PIN	SIGNAL	PIN	SIGNAL
1	+5V - USB0	2	+5V - USB1
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	Gnd - USB0	8	Gnd - USB1

P18 - SYSTEM HARDWARE MONITOR CONNECTOR

6 pin single row header, Amp #640456-6

PIN	SIGNAL
1	Gnd
2	GPO (General Purpose Output)
3	CI (Chassis Intrusion Input)
4	FAN1 (Fan 1 Tachometer Input)
5	FAN2 (Fan 2 Tachometer Input)
6	OS# (Temperature Sense Output)

P19 - CPU Fan

3 pin single row header, Molex #22-23-2031

PIN	SIGNAL

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1 Gnd

2 +12V

3 Fan Tach

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Memory

The DRAM interface consists of two dual in-line memory module (DIMM) sockets and supports auto detection of memory up to 512MB of Synchronous DRAM (SDRAM) for the 440BX or up to 1GB of SDRAM for the 440GX. Minimum memory size is 8MB. The System BIOS automatically detects memory type, size and speed.

The SBC uses industry standard 64-bit or 72-bit wide gold finger DIMM DRAM in two 168-pin DIMM sockets.

NOTE: Memory can be installed in one or both DIMM sockets. If only one DIMM module is used, it must be populated in the top DIMM socket (Bank 1 - BK1). If two modules are used, they must be the same DIMM type, but may be different sizes (see table below). EDO DIMMs are not supported. All DIMMs must have gold contacts.

The SBC supports DIMM memory modules which are PC-100 compliant and have the following features:

- 168-pin DIMMs with gold-plated contacts
- 100MHz SDRAM
- Non-ECC (64-bit) or ECC (72-bit) memory
- 3.3 volt only
- Single or double-sided DIMMs in the sizes listed below
- Buffered or Registered configuration

DIMM Size	DIMM Type	Non-ECC	ECC
8 MB	Unbuffered	1M x 64	1M x 72
16 MB	Unbuffered	2M x 64	2M x 72
32 MB	Unbuffered	4M x 64	4M x 72
64 MB	Unbuffered	8M x 64	8M x 72
128 MB	Unbuffered	16M x 64	16M x 72
256 MB	Registered	32M x 64	32M x 72
512 MB	Registered	64M x 64	64M x 72 **

** P2GX models only

All memory components and DIMMs used with the SBC must be PC-100 compliant, which means that they comply with Intel's PC SDRAM specifications. These include the PC SDRAM Specification (memory component specific), the PC Unbuffered DIMM Specification, the PC Registered DIMM Specification and the PC Serial Presence Detect Specification.

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