



VME-TB21

Peripheral Transition Board

User's Manual

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Document Information

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Revision History

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B0	jev	5-15-2003	Update for minor changes and current Logos

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Conventions

A number of conventions are used throughout this manual in order to provide clarity and accuracy. These include:

- The use of an 'H' suffix to a number indicates that the number is written in hexadecimal (base sixteen) notation.
- The use of a '-' (minus) suffix to a signal name indicates that it is an active low signal. The signal is either true when the signal is at a logic zero level or the signal initiates actions on a high-to-low transition.
- Text in `Courier` Font indicates a command entry or output from an SBS embedded PC product using its built-in character set.

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General Description

The VME-TB21 transition board is a companion to SBS Technologies VME-2486, V5x, and PROx series Embedded PCs which provides a convenient means of connecting remotely-mounted floppy drives, hard drives, and other peripherals. The VME-TB21 routes the peripheral control signals supplied by the *a* and *c* rows of the Embedded PC's P2 connector to standardized connectors which are compatible with industry-standard signal definitions. The VME-TB21 simply plugs onto the back of the P2 backplane in the slot position occupied by the CPU card. Only the signals provided on P2 rows *a* and *c*, and power (+5V/GND) from row *b* are utilized by the TB21. The extended VMEbus signals on row *b* are not connected.

Features

The VME-TB21 has a number of features which make it an excellent companion to SBS Embedded Computers VME-2486, V5x, and PROx Embedded PCs:

- Directly Plug Compatible with VME-2486, V5x, and PROx series
- Connection to Floppy, IDE and SCSI
- Provides P2 Peripheral Interface Connector for SBS Drive Modules

NOTE: Power Connectors are not available on the VME-TB21.

Connector Locations

The location of each connector of the VME-TB21 is shown in Figure 1.

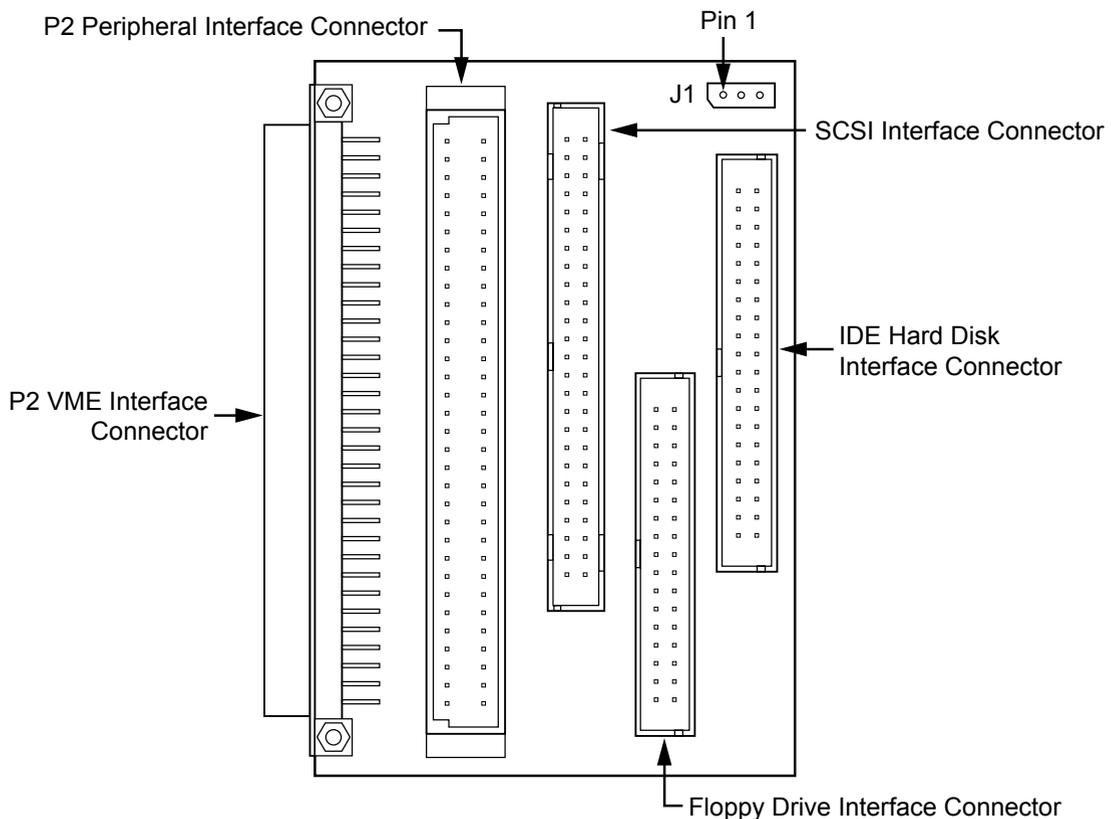


Figure 1 Location of TB21 Connectors

P2 Peripheral Interface

The P2 peripheral interface is provided to a three-row eurocard socket connector labeled P1 which has the center row, row *b*, not installed. As such, it does not pass the extended VME signals found on P2 row *b*, but provides the SCSI, IDE, and floppy drive signals found on P2 rows *a* and *c*. With this interface, you can use a TB21 with your Embedded PC and still connect a SBS Technologies VME-6200 drive module.

Figure 2 shows the pin numbering of the connector. Table 1 shows the signals provided by the P2 peripheral interface.

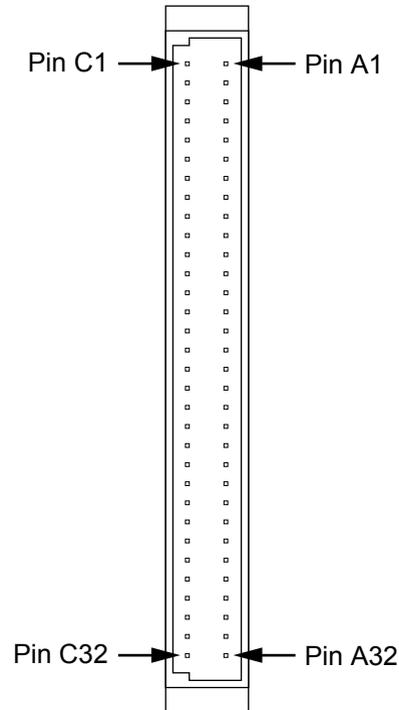


Figure 2 P2 Peripheral Interface Connector Pin Locations

Pin Number	Row c Pin	Row a Pin
1	HDMACK-	DB0
2	HD0	DB1
3	HD1	DB2
4	HD2	DB3
5	HD3	DB4
6	HD4	DB5
7	HD5	DB6
8	HD6	DB7
9	HD7	PARITY-
10	HD8	ATN-
11	HD9	BSY-
12	HD10	ACK-
13	HD11	RST-
14	HD12	MSG-
15	HD13	SEL-
16	HD14	C/D-
17	HD15	REQ-
18	PDIAG	I/O-
19	HDIOW-	HSMARQ
20	HDIOR-	FRWC-
21	IOCHRDY	FINDEX-
22	HDALE	FMTO-
23	IRQ14	FDS2-
24	IOCS16-	FDS1-
25	HDA0	FMT1-
26	HDA1	FDIRC-
27	HDA2	FSTEP-
28	HCS0-	FWD-
29	HCS1-	FWE-
30	SLVACT-	FTK0-
31	FHS-	FWP-
32	FDSKCHG-	FRD-

Table 1 P2 Peripheral Interface Signals

Floppy Drive Interface

The floppy drive interface is provided to a 34-position male header connector (AMP part 103308-7 or equivalent) which will accept most standard floppy cable assemblies. The connector is labeled “FLOPPY” on the TB21 silkscreen and is component P3. Figure 3 shows the pin numbering of the connector. Table 2 shows the signals provided by the floppy interface.

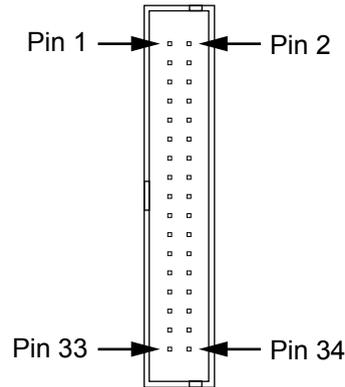


Figure 3 Floppy Interface Connector Pin Locations

P3 Pin	Signal	Direction	Signal Description
Odd	GND		Signal Ground
2	FRWC-	To Drive	Read/Write Control
4	NC		Not Connected - Unused
6	NC		Not Connected - Unused
8	FINDEX-	From Drive	Index Mark Detected
10	FMT0-	To Drive	Motor On 0
12	FDS2-	To Drive	Drive Select 2
14	FDS1-	To Drive	Drive Select 1
16	FMT1-	To Drive	Motor Control 1
18	FDIRC-	To Drive	Step Motor Direction Control
20	FSTEP-	To Drive	Motor Step Control
22	FWD-	To Drive	Write Data
24	FWE-	To Drive	Write Enable
26	FTK0-	From Drive	Track 0 Position
28	FWP-	From Drive	Floppy is Write Protected
30	FRD-	From Drive	Read Data
32	FHS-	To Drive	Head (Side) Select
34	FDSKCHG-	From Drive	Disk Change Indicator

Table 2 Floppy Drive Interface Signals

SCSI Interface

The SCSI hard disk interface is provided by a 50-position male header connector which will accept most standard SCSI drive ribbon cable assemblies. This connector is labeled P4 and Figure 4 shows the pin locations of the connector. The signals provided by the SCSI interface are shown in Table 3.

Note: Termination power is provided by the TB21 if the TB21 is being supplied power via the power supply connector.

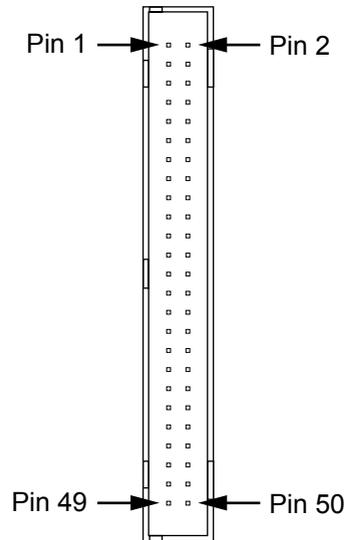


Figure 4 SCSI Connector Pin Locations

P4 Pin	Signal	Signal Description
Odd #s	GND	Signal Ground
2	SC0-	Data Bit 0
4	SC1-	Data Bit 1
6	SC2-	Data Bit 2
8	SC3-	Data Bit 3
10	SC4-	Data Bit 4
12	SC5-	Data Bit 5
14	SC6-	Data Bit 6
16	SC7-	Data Bit 7
18	SPAR-	Data Bus Parity
20	GND	Signal Ground
22	GND	Signal Ground
24	GND	Signal Ground
26	TRMPWR	Terminator Power*
28	GND	Signal Ground
30	GND	Signal Ground
32	ATN-	Attention
34	GND	Signal Ground
36	SBSY-	SCSI Bus Busy
38	SACK-	Acknowledge
40	SRST-	SCSI Bus Reset
42	SMSG-	Message
44	SSEL-	Select
46	SCD-	Command/Data
48	SREQ-	Request
50	SIO-	Input/Output Data Direction

Table 3 SCSI Interface Signals

IDE Drive Interface

The IDE hard drive interface is provided to a 40-position male header connector (AMP part 103308-8 or equivalent) which will accept most standard IDE cable assemblies. This connector is labeled P5 and Figure 5 shows the pin locations of the connector. The IDE hard drive interface provides the signals shown in Table 4.

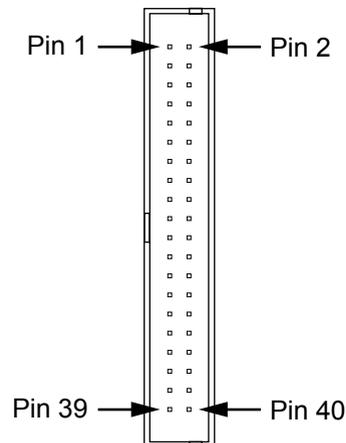


Figure 5 IDE Interface Connector Pin Locations

P5 Pin	Signal	Direction	Signal Description
1	HDRESET-	To Drive	Drive Reset
2	GND		Signal Ground
3	HD07	Bidirectional	Disk Data Bit 7
4	HD08	Bidirectional	Disk Data Bit 8
5	HD06	Bidirectional	Disk Data Bit 6
6	HD09	Bidirectional	Disk Data Bit 9
7	HD05	Bidirectional	Disk Data Bit 5
8	HD10	Bidirectional	Disk Data Bit 10
9	HD04	Bidirectional	Disk Data Bit 4
10	HD11	Bidirectional	Disk Data Bit 11
11	HD03	Bidirectional	Disk Data Bit 3
12	HD12	Bidirectional	Disk Data Bit 12
13	HD02	Bidirectional	Disk Data Bit 2
14	HD13	Bidirectional	Disk Data Bit 13
15	HD01	Bidirectional	Disk Data Bit 1
16	HD14	Bidirectional	Disk Data Bit 14
17	HD00	Bidirectional	Disk Data Bit 0
18	HD15	Bidirectional	Disk Data Bit 15
19	GND		Signal Ground
20	KEY		Keying Pin Position
21	HDMARQ	From Drive	DMA Request
22	GND		Signal Ground
23	HDIOW-	To Drive	Drive I/O Write
24	GND		Signal Ground
25	HDIOR-	To Drive	Drive I/O Read
26	GND		Signal Ground
27	IOCHRDY	From Drive	I/O Channel Ready
28	HDALE	To Drive	Address Latch Enable
29	HDMACK-	To Drive	DMA Acknowledge
30	GND		Signal Ground
31	HDIRQ	From Drive	Interrupt Request
32	HDIACS16	To Drive	I/O Channel Select 16
33	HDA1	To Drive	Address Line 1
34	PDIAG-	Bidirectional	Passed Diagnostics
35	HDA0	To Drive	Address Line 0
36	HDA2	To Drive	Address Line 2
37	HCS0-	To Drive	Chip Select 0
38	HCS1-	To Drive	Chip Select 1
39	SLVACT-	To Drive	Slave Active
40	GND		Signal Ground

Table 4 IDE Drive Interface Signals

Installation

The VME-TB21 can be installed into a VME-system by simply plugging the P2 connector of the TB21 onto the wire wrap pins or transition connector of most VMEbus P2 backplanes in the slot position of the host CPU board. Once installed, the VME-TB21 extends a maximum of 3 inches behind the P2 backplane mating connectors. Even with the disk drive signal and power connectors installed, the VME-TB21 occupies only one VMEbus slot width (4HP) and will not interfere with adjacent transition boards. To prevent exerting unnecessary force on the TB21, it is recommended that you connect all peripherals to the TB21 before plugging it into the backplane.

NOTE: *Ji should never be installed.*

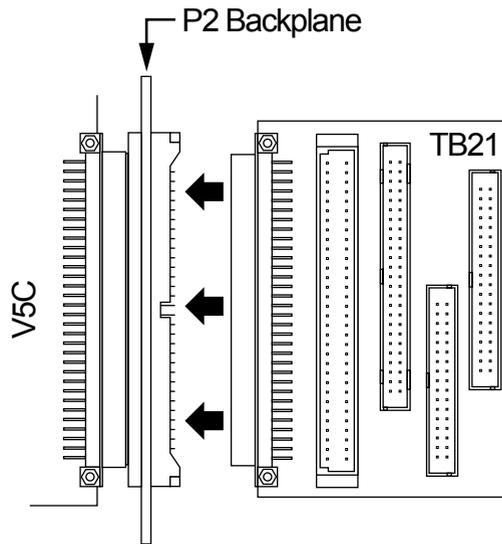


Figure 8 TB21 Installation

Specifications

General	Model	VME-TB21
	Description	Peripheral Transition Board
	Host Compatibility	VME-2486, V5x and PROx
Electrical	Power	+5V, 400mA max. SCSI termination power
Physical	Size	3.9" x 3.2" Overall
Environmental	Temperature	0 to 55° Celsius Inlet Air, Operating -40 to 85° Celsius, Non-Operating
	Cooling	None
	Humidity	10 to 90% RH, Non-Condensing
	Shock	6G Max. Operating, 10G Max. Non-Operating