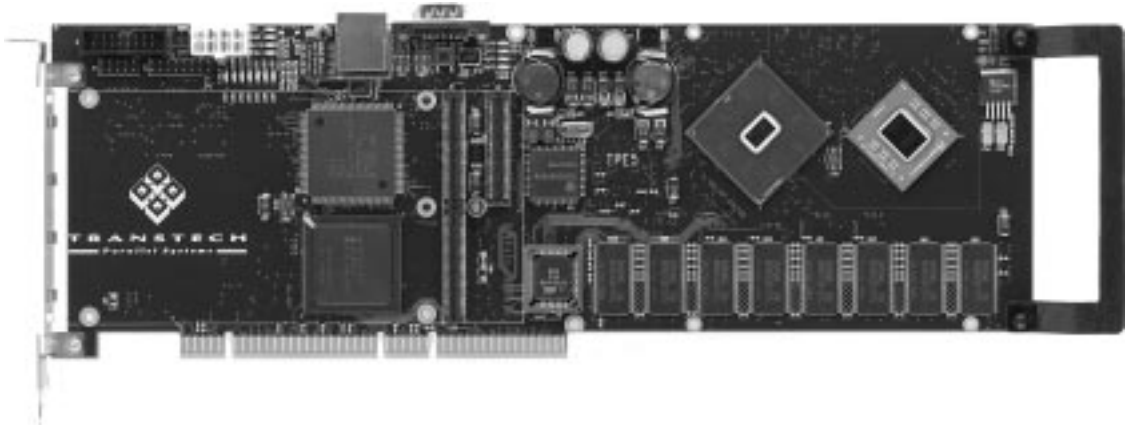
TRANSTECH
Parallel Systems

TPE5 PowerPC™ G4 *plus* PCI Card

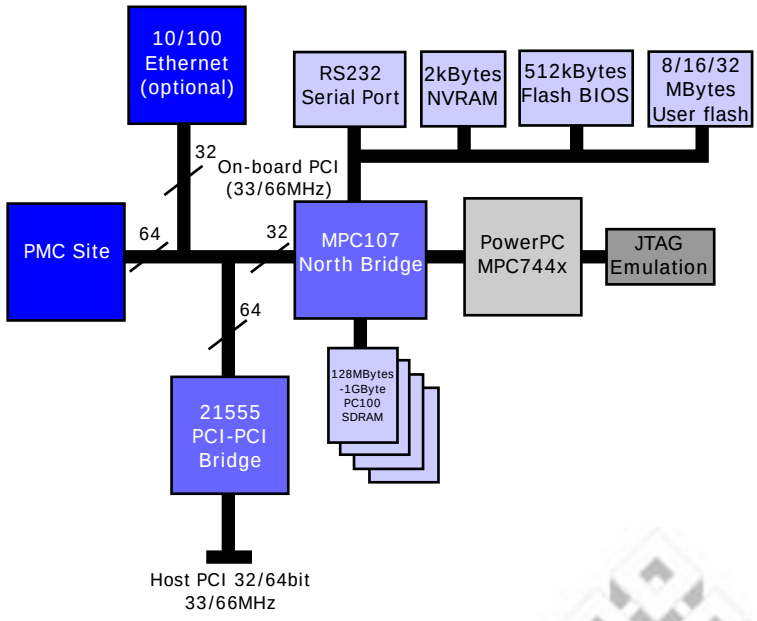


- Industry standard PCI full length card
- 733MHz-1GHz+ PowerPC™ G4+ CPU with AltiVec™ and 256kBytes on-chip L2 cache
- 128MBytes-1GByte 100MHz SDRAM
- Optional on-board 10/100 ethernet controller
- RS232 serial port
- Supports JTAG in-circuit emulators including EST Vision Probe™ and AMC PowerTap™
- PowerPC™ software support includes Linux 2.4 and AltiVec™ enabled VxWorks™ BSP
- Host support includes Windows NT 4.0, Windows 2000, Windows XP, Linux and Solaris 8
- Open source BIOS firmware in 512k field programmable flash EPROM, includes TCL interpreter

The TPE5 PowerPC™ PCI card delivers an outstanding combination of computational and I/O performance in a compact, industry standard form factor. On its own or as part of a multiprocessing system, the TPE5 is a powerful engine for embedded computing in industrial, military and commercial applications.

The TPE5 utilises a third generation PowerPC™ G4+ CPU - the Motorola MPC744x family. This device uses a highly advanced superscaler architecture to deliver exceptional integer and floating point performance.

The PowerPC™ G4+ benefits from a highly efficient 100MHz system bus and an AltiVec™ 128bit vector processing engine which can perform four single precision floating point operations per clock cycle. Performance is further enhanced by 256kBytes on chip cache running at full core speed.



PowerPC™

The TPE5 is based on a core architecture that is well proven and has been deployed in numerous standard and custom designs.

An MPC107 North Bridge is used to connect the CPU to the SDRAM memory and the on-board PCI bus. This device also includes a programmable interrupt controller, an I^2C master interface and a pair of DMA engines.

The on-board PCI bus connects the MPC107 to the PMC module site and an Intel 21555 PCI-PCI bridge.

The 21555 allows data to pass to and from the host machine, handling differences in bus width and bus speed. Transactions between the PowerPC and PMC site are ignored, and do not affect host PCI bus loading.

The PMC site supports a wide variety of off-the-shelf modules, e.g. analog and digital I/O, networking, coprocessors etc. It can accept any 32 or 64-bit 5V PMC module with voltage keying specified as a factory option.

A 512k field programmable flash EPROM holds the board's BIOS which initialises all devices and loads the desired operating system. This supports a simple command line interface through the on-board RS232 serial port or PCI based vitual serial port, using a TCL interpreter.

A standard JTAG connector supports debugging with any of the large range of PowerPC debuggers such as the WindRiver VisionProbe and AMC PowerTAP.

PowerPC software may be developed for Linux, VxWorks or Gnu Tool Kit for bare C programming. Host support consisting of drivers, libraries, utilities and examples is available for a variety of platforms:

- Windows NT 4.0, 2000 and XP
- x86 Linux (2.2 and 2.4)
- Sun Solaris 8

Specifications

Processor

Type	MPC744x family
Core Speed	733MHz +
L1 cache	32k instruction, 32k data
L2 cache	256kBytes (on-chip)

Main Memory

Type	SDRAM
Size	128/256/512Mbytes/1GByte
Bus Speed	100MHz

On-board PCI Bus

Speed	33/66MHz (33MHz with Ethernet option)
Width:	
PMC	32/64 bit
PCI-PCI Bridge	32/64 bit
North Bridge	32 bit

Host PCI Bus

Compliance	PCI 2.2
Width	32/64 bit
Speed	33/66 MHz
Voltage keying	universal

PMC Module Site

Compliance	IEEE P1386.1, PCI 2.2
Voltage keying	3.3V/5V (factory option)

On-board Ethernet (Optional)

Controller	AMD AM79C973B
Supported Standards	10BaseT, 100BaseTX
Connector	RJ45 uplink

In-Circuit Emulation

Interface	JTAG BDM
Connector	standard 16 way COP header

Mechanical

Form factor	PCI full length add-in card
Size	312mm x 107mm
Weight	375 g

Environmental

Power dissipation	25 Watts (Max)
Operating temperature	0 to 55 ºC
Storage temperature	-10 to 85 ºC
Operating humidity	5% to 75% non condensing
Storage humidity	5% to 95% non condensing

Software

- PowerPC™ Linux 2.4 with TCP/IP over PCI
- VxWorks™ BSP with AltiVec™
- Hosting support for Windows NT 4.0, Windows 2000, Windows XP, x86 Linux (2.2/2.4), Sun Solaris 8

Ordering Information

Part Number
TPE5-SSS-MMM
Key
SSS = CPU core speed
MMM = External SDRAM

For Ethernet and PMC voltage keying options please contact our sales department.

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