Themis TA64 High-Performance Low Power 64-Bit VME64x Computer

Uses the New AMD Turion™ 64 Low Power Mobile Processor

The TA64 expands the Themis 64-Bit VME64x product line with the new AMD® Turion™ 64 Processor. A TA64 system can be configured with either an 800MHz or 1.6GHz Processor, bringing 64-bit server levels of performance and connectivity to demanding VME64x applications. Well equipped with Gigabit Ethernet, USB, U320 SCSI, EIDE, Floppy, and PCI-X interfaces this computer brings high connectivity, VME64x, and Powerful 64-bit Processing to the VME64x market supporting all of the most popular 64-bit operating systems.

I/O expansion is supported via the on-board PMC slot, and I/O expansion carrier card options support two or three additional PMC slots. Graphics capability is available with a Themis TGA-7000 PMC 2D/3D Graphics Card.

TA64 Features and Specifications

- Turion™ 64 800MHz or 1.6GHz Processor
- Estimated Performance: 1136 SPECint2K (@ 1.6GHz)
                                          1064 SPECfp2K (@ 1.6GHz)
- 1GB to 4GB of DDR333 SDRAM Memory with ECC
- 16MBytes User Flash
- Phoenix BIOS

Operating System Support
- Support for Redhat Linux, Solaris 10, Windows XP, and WindowsServer 2003
- Boot from SCSI, IDE, Floppy Port, Ethernet, or Boot From a USB Floppy/CD/DVD Drive!

VME Interface
- Universe II VME64x Interface Controller
- System and front panel LEDS

Expansion Capabilities
- On-Board 64-Bit/66MHz PMC expansion slot
- Expandable to Three PMC slots with a 2P2 Carrier Card
- Expandable to Four PMC slots with a 2P3 Carrier Card

TA64 with 2P2 Carrier Card
- Additional 8MBytes User Flash
- AC'97 Audio Codec
- One additional GigE port (RJ45) on front panel
- Two additional Serial Ports
- Two Additional 64-Bit PMC Slots
- Rotary Switch, 16-Position, Software Readable

Low Power Consumption
- The Turion™ 64 is designed for low power applications
- Estimated Maximum Power: 45 Watts (with color graphics PMC card)

Front Panel (FP) and VME P2 (P2) Connector I/O

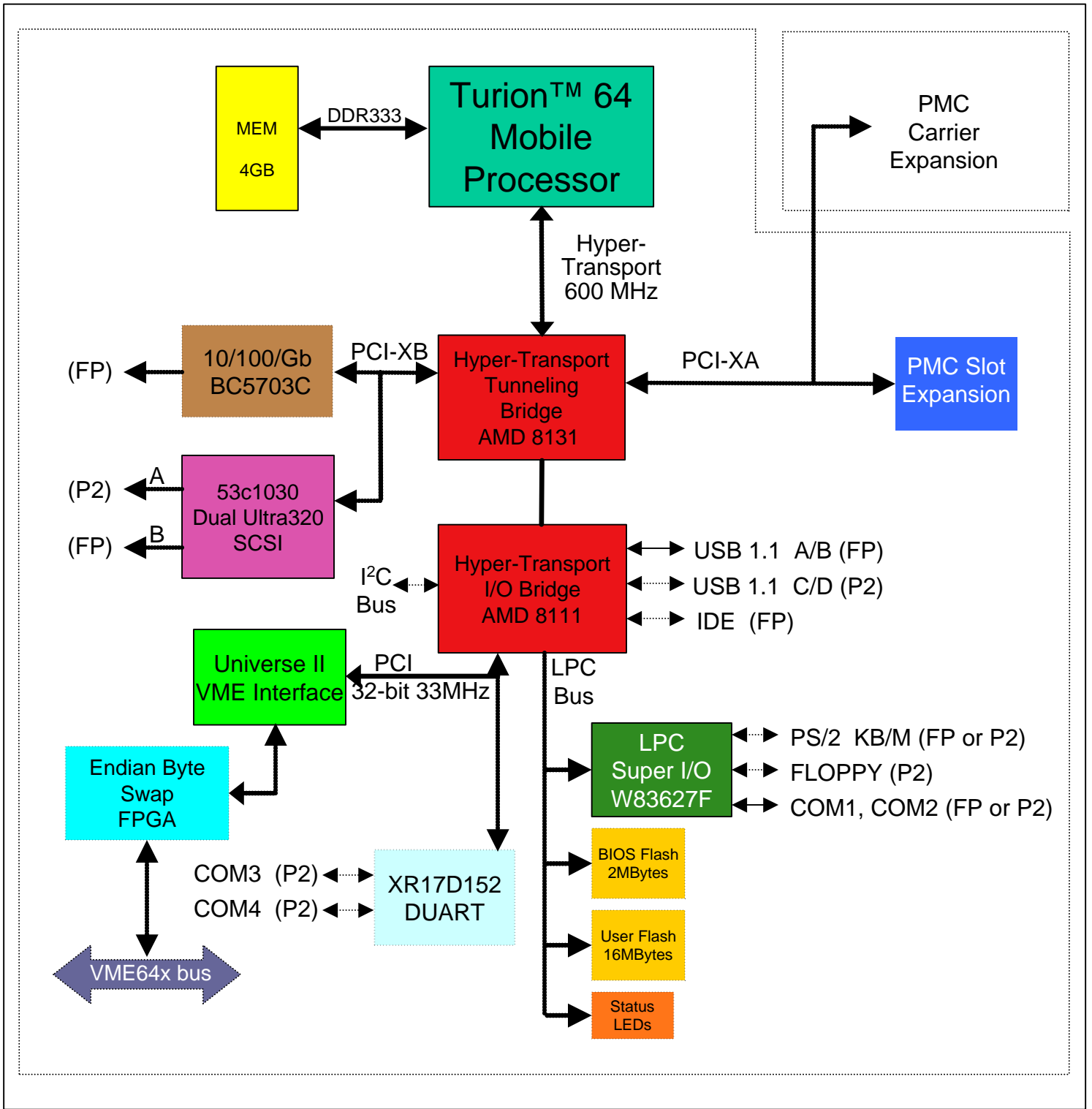| I/O	Quantity	Access
Gb Ethernet	1	Front Panel
Ultra320 SCSI	2	SCSI-A: P2 SCSI-B: Front Panel
IDE	1	Front Panel
USB	4	2 on Front Panel, 2 on P2
Serial Ports	4	COM1 & COM2: Front Panel and P2 (COM2 supports RS-422) COM3 & COM4: P2
Floppy Drive	1	P2 only
Keyboard & Mouse		PS/2 Front Panel and P2, USB

Environmental

Parameter	Operating	Non-Operating
Temperature Range	0°C to 40°C (10,000 feet) 0°C to 50°C (sea level)	-40 to 95°C
Humidity (non-condensing)	10 to 95%	
Shock	30G @ 40mS	30G @ 40mS
Vibration (10-2000Hz)	0.90G (rms)	2.97G (rms)

Power Requirements
- 5V @ 7.5 Amps, 12V @ 0.75 Amps

Turion Processor Key Architectural Features

64-Bit Performance
The AMD Turion™ 64 Processor features a 64-Bit extended x86 instruction set. The Turion™ 64 Processor offers powerful 64-bit performance for new 64-Bit and existing 32-Bit applications.

Integrated DDR DRAM Memory Controller
The Turion™ 64 processor implements a distributed memory architecture. This processor includes a 72-bit wide integrated ECC memory controller. Memory is connected directly to the CPU eliminating bottlenecks created in a shared memory architecture. Connecting memory directly to the CPU reduces memory latency, increasing processor performance.

HyperTransport Technology
HyperTransport technology is a high-speed, low latency, point-to-point link. It is designed to increase the communication bandwidth between integrated circuits. The Turion™ 64 Processor uses this HyperTransport link to enable fast, efficient transfers to I/O controllers

THEMIS

TA64 Block Diagram

MEM 4GB

DDR333

Turion™ 64 Mobile Processor

PMC Carrier Expansion

Hyper-Transport 600 MHz

10/100/Gb BC5703C

(FP)

PCI-XB

Hyper-Transport Tunneling Bridge AMD 8131

PCI-XA

PMC Slot Expansion

53c1030 Dual Ultra320 SCSI

A

(P2)

B

(FP)

Hyper-Transport I/O Bridge AMD 8111

I^2C Bus

USB 1.1 A/B (FP)

USB 1.1 C/D (P2)

IDE (FP)

Universe II VME Interface

PCI 32-bit 33MHz

LPC Bus

Endian Byte Swap FPGA

LPC Super I/O W83627F

PS/2 KB/M (FP or P2)

FLOPPY (P2)

COM1, COM2 (FP or P2)

COM3 (P2)

COM4 (P2)

XR17D152 DUART

BIOS Flash 2MBytes

User Flash 16MBytes

VME64x bus

Status LEDs