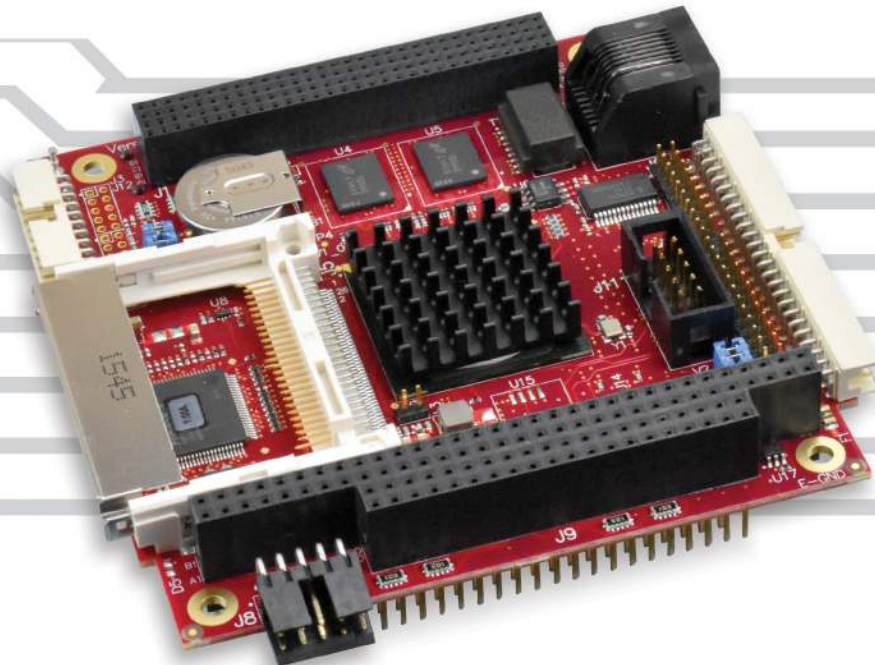# Tomcat

PC/104-*Plus* Single Board Computer

95 x 96 mm
(3.76 x 3.78")

Overview

The Tomcat single board computer features the ultra-low power DMP Vortex86DX processor. Based on the PC/104-*Plus* industry standard form factor, the Tomcat supports PCI and ISA stackable expansion boards. With mid-range performance (800 MHz) and ultra-low power consumption (3.0W typ.), the Tomcat is well suited to size, weight, and power constrained applications. With no moving parts (fanless operation), full industrial temperature rating, soldered-on RAM, and a compact rugged form factor, it is ideal for operation in harsh, mobile, and/or remote environments.

The Tomcat is "headless". It is designed for applications that do not require any type of video output.

Like all VersaLogic products, the Tomcat is designed to support OEM applications where high reliability and long-term availability are required. From application design-in support, to its extended production lifecycle, the Tomcat provides a durable embedded computer solution with an excellent cost of ownership. The Tomcat is manufactured and tested to the highest quality standards and is fully RoHS compliant. Customization is available, even in low OEM quantities.
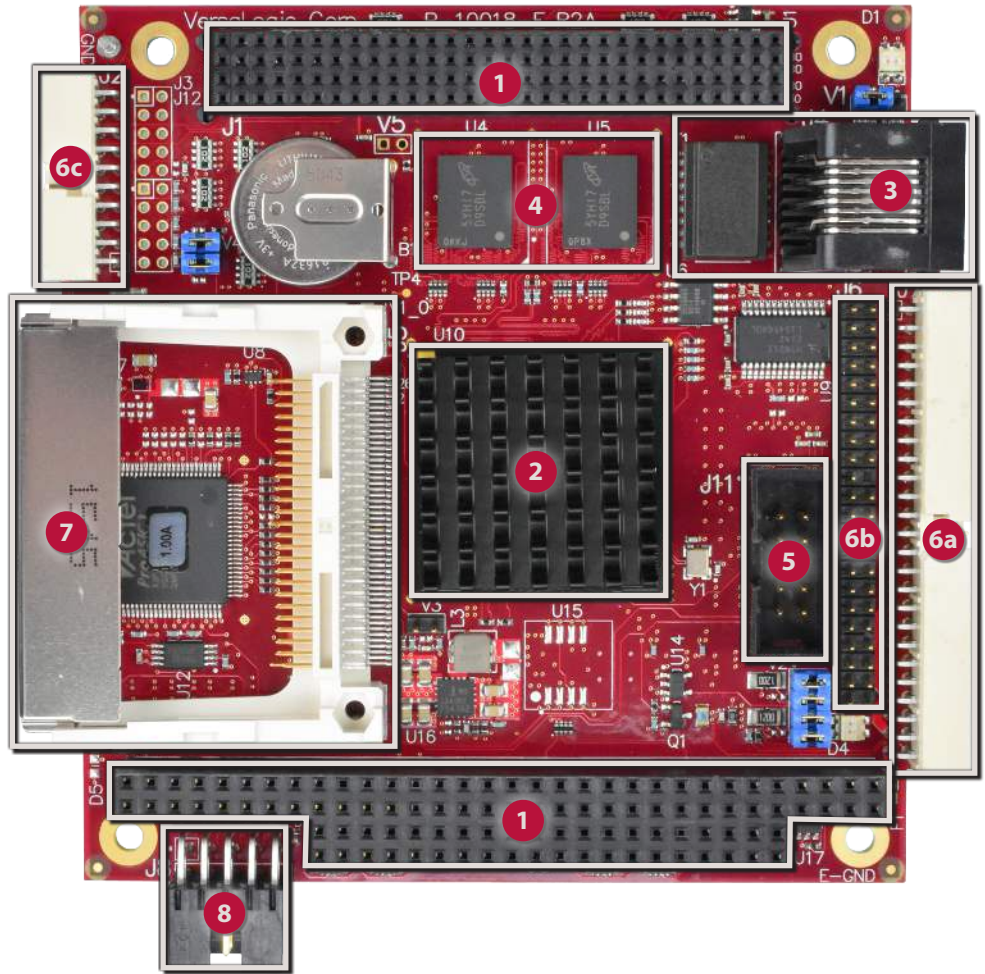
Highlights

- DMP Vortex86DX processor
- Very low power consumption
- Fast Ethernet
- 256 MB soldered-on RAM
- USB 2.0 (2 ports)
- Serial I/O (4 ports)
- IDE interface
- CompactFlash® socket
- Fanless operation
- Extended temperature operation
- Shock and vibration per MIL-STD-202G

VERSALOGIC CORPORATION

Features

1 PC/104-*Plus* Form Factor
Supports PCI and ISA expansion on a highly rugged format.

2 Vortex86DX Processor
800 MHz performance with ultra-low power consumption.

3 Network Support
Fast Ethernet with remote boot support.

4 System RAM
256 MB soldered-on RAM for harsh environments.

5 USB I/O
Two USB 2.0 ports support keyboard, mouse, and other devices.

6 Device I/O
Four serial ports (**6a**), IDE (**6b**), and LPT (**6c**).

7 Flash Memory
CompactFlash socket for solid-state storage.

8 Main Power Input
5V Input ±5%

Fanless Operation
No moving parts required for CPU cooling.

Extended Temperature
-40° to +85°C operation for harsh environments.

MIL-STD-202G
Qualified for high shock and vibration environments.

Modify Tomcat to Your Exact Requirements

COTS modifications are available in quantities as low as 100 pieces.

- On-board RAM size
- Standard Temperature Version
- Conformal Coating
- Connector & I/O Changes
- Custom Testing
- Custom Labeling
- BGA Underfill
- BIOS Modifications
- Software and Drivers
- Revision Locks
- Custom Screening
- Application-Specific Testing
- Etc.

Specifications

General

General	
Board Size	PC/104-*Plus* compliant: 95 x 96 mm (3.76 x 3.78")
Weight	99 grams (3.5 oz.)
Processor	DMP Vortex86DX. 256 KB L2 cache.
Input Voltage	5VDC +/- 5%

Power Requirements	Idle	Typical	Maximum
	0.54A (2.7W)	0.60A (3.0W)	0.65A (3.3W)

System Reset and Hardware Monitors	Watchdog with programmable timeout. Vcc sensing (resets below 4.63V typ.).
Stackable Bus	PC/104-*Plus*: PCI, ISA
Manufacturing Standards	IPC-A-610 Class 2 modified
Regulatory Compliance	RoHS (EU 2015/863), Conflict Mineral Free

Environmental

Environmental	
Operating Temperature	-40° to +85°C
Storage Temperature	-40° to +85°C
Airflow Requirements	Free air from -40° to +85°C
Thermal Shock	5°C/min. over operating temperature
Humidity	Less than 95%, noncondensing
Vibration, Sinusoidal Sweep	MIL-STD-202G, Method 204, Modified Condition A: 2g constant acceleration from 5 to 500 Hz, 20 min. per axis
Vibration, Random	MIL-STD-202G, Method 214A, Condition A: 5.35g rms, 5 min. per axis
Mechanical Shock	MIL-STD-202G, Method 213B, Condition G: 20g half-sine, 11 ms duration per axis

Memory

Memory	
System RAM	256 MB soldered-on DDR2 SDRAM

Video

Video	
Interface	None. Use VL-EPM-V7 module or similar during development.

Mass Storage

Mass Storage	
Hard Drive	ATA/66 IDE interface. 44-pin 2 mm connector.
Flash Drive	One CompactFlash socket (Type II) with DMA. Optional latching retention clip available.

Network Interface

Network Interface	
Ethernet‡	One autodetect 10BaseT/100BaseTX port
Network Boot Option	Intel boot agent (downloadable) supports PXE protocol. Argon Managed Boot Agent (optional with royalty fee) supports PXE, RPL, NetWare, TCP/IP (DHCP, BOOTP) remote boot protocols.

Device I/O

Device I/O	
USB ‡*	Two USB 2.0/1.1 ports
COM 1 / 2 Interface*	RS-232. 16C550 compatible. 115 Kbps.
COM 3 / 4 Interface*	RS-232/422/485 selectable. 16C550 compatible. 115 Kbps.
LPT Interface	SPP/EPP/ECP compatible
Counter/Timers	Two general-purpose timer inputs
Other	PS/2 keyboard and mouse

Software

Software	
BIOS	AMI BIOS. Field reprogrammable. Support for USB keyboard/mouse and USB boot.
Operating Systems	Compatible with most x86 operating systems, including Windows, Windows Embedded, Linux, VxWorks, and QNX

§ All power specifications represent operation at +25°C with +5V supply running Windows XP with Ethernet, keyboard, and mouse. Maximum power as measured with 95% CPU utilization.

‡ TVS protected port (enhanced ESD protection).

* Power pins on this port are overload protected.

Specifications are subject to change without notification. Vortex is a registered trademark of DMP Electronics, Inc. CompactFlash is a trademark of SanDisk Corp. All other trademarks are the property of their respective owners.

Ordering Information

Call VersaLogic Sales at (503) 747-2261 for more information!

Model	Processor	Speed	RAM	Operating Temp.	Cooling
VL-EPM-16F	Vortex86DX	800 MHz	256 MB	-40° to +85°C	Heat Sink

Development Kit

Part Number	Description
VL-CKR-TOMC	Development Cable Kit for Tomcat (EPM-16). Includes VL-CBR-5009, 1008, 1013, 2003, 4405, 4406, and HDW-105.
VL-CBR-1008	Power cable, ATX to 10-pin
VL-CBR-1013	USB cable and boards, two port
VL-CBR-2003	LPT cable, 20-pin 2 mm / DB-25F, 12"
VL-CBR-4405	IDE adapter board, 2 mm to 0.1"
VL-CBR-4406	IDE cable, 44-pin latching, 18"
VL-CBR-5009	Front panel I/O cable assembly, 18"
VL-HDW-105	Standoff package (metric thread) M3, 0.6"

Accessories

Part Number	Description
VL-EPM-V7E	Video Expansion Module: VGA and LVDS, Industrial Temperature
VL-EPM-P2E	Mini PCIe socket x2 Adapter, PCIe signaling, Industrial Temperature
VL-CF-CLIP1	Retention clip for CompactFlash
VL-CFM-xxx	CompactFlash module
VL-ENCL-5C	Development enclosure
VL-HDW-106	Standoff package (English thread) 4-40, 0.6"
VL-HDW-112	PC104 (ISA) Spacer
VL-HDW-113	PC104 (PCI) Spacer
VL-HDW-115	PC104 (blank) Spacer
VL-HDW-203	Extractor tool, metal
VL-PS200-ATX	Development power supply
VL-PS-ATX12-300A	ATX development power supply (requires VL-CBR-2034)
VL-CBR-2034	6" 20-pin (F) ATX to 24-pin (M) ATX adapter cable (use with PS-ATX12-300A)

Take the Risk out of Embedded Computing

Whether it's selecting the optimum solution for your application, providing expert support during development, or on-time delivery of defect-free products, VersaLogic is here to make sure your project goes smoothly from initial concept through the extended life of your program. Contact VersaLogic today to learn more.

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