Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

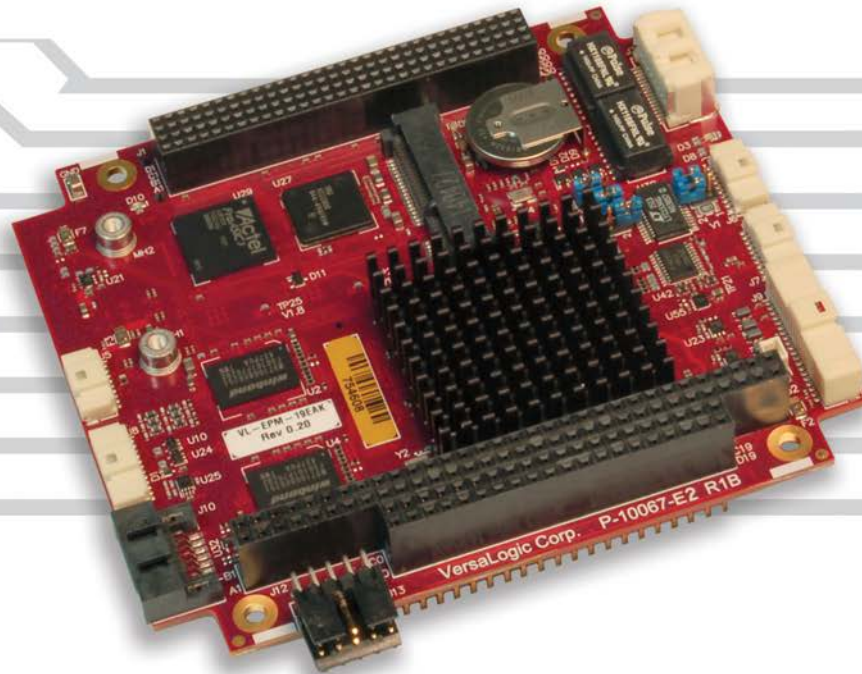## Contact us

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Fox

PC/104-*Plus* Single Board Computer

Overview

The Fox is a low power embedded computer designed around the PC/104-Plus standard. It is powered by a DMP Vortex86DX2 processor that enables the entire board to typically use less than 6.65W of power. Several I/O interfaces, multiple expansion buses, and thermal management options provide system designers with flexibility and low overall system cost.

Fox was designed with no moving parts, soldered-on RAM, and tested so it can withstand extreme temperatures, high-impact, and vibration. This single board computer is an ideal choice for applications that require moderate performance, low-power draw, high quality, and long product life.

As with all VersaLogic products, the Fox is backed by a five-year warranty, 5+ year off-the-shelf availability guarantee, and expert US-based technical support. Product Life Extension options support availability through the year 2025.
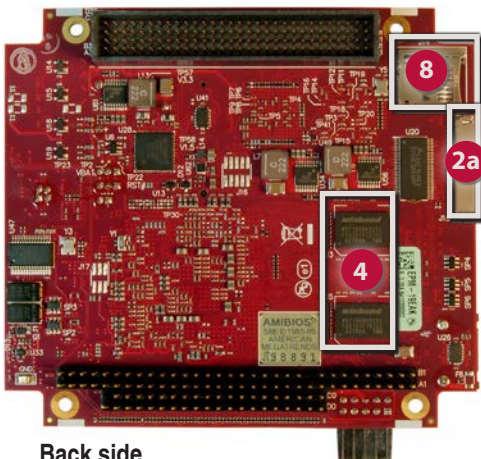
Highlights

- Industrial temp. (-40° to +85°C) versions
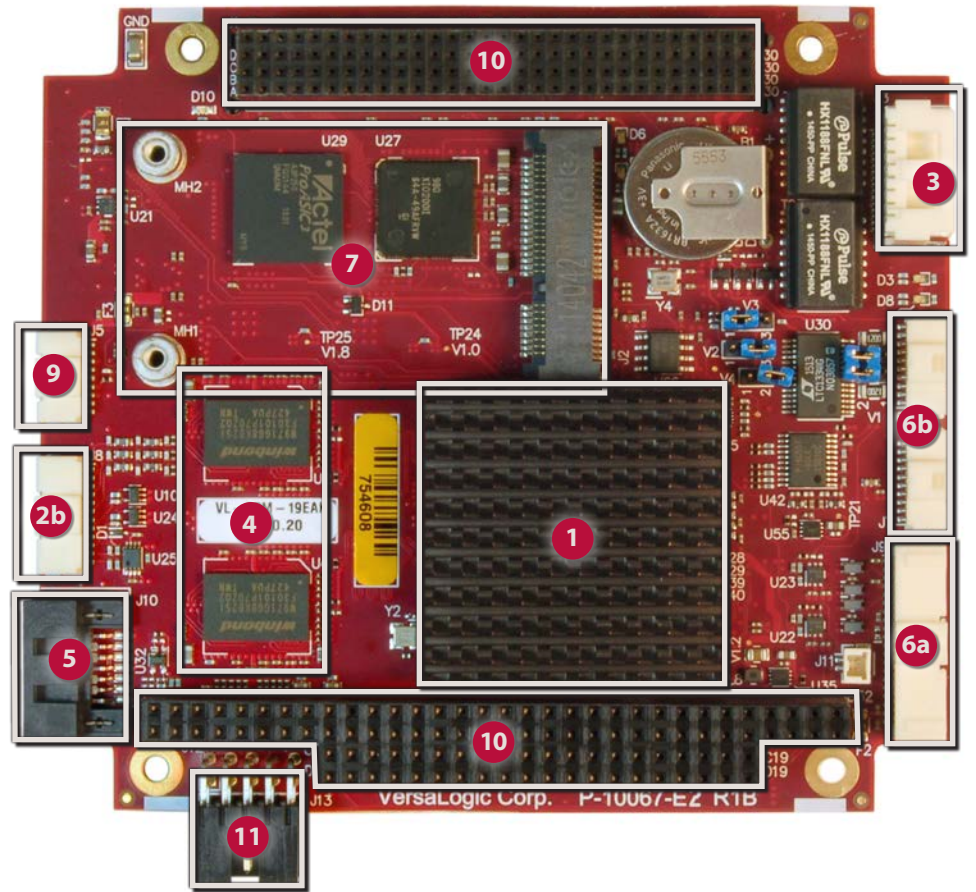- Shock & vibration per MIL-STD-202G
- PC/104™ form factor
- Low power draw
- Fanless Operation
- DMP Vortex CPU
- Up to 1 GB soldered-on RAM

- PC/104-*Plus* expansion interface
- Dual 10/100 Ethernet
- VGA and LVDS video
- Mini PCIe / mSATA socket
- USB 2.0 ports
- Serial I/O (RS-232/422/485)
- SATA port
- MicroSD card socket
- VersaAPI software support

VERSALOGIC CORPORATION

Features

1 DMP Vortex86DX2 32-bit Processor

Vortex86DX2 x86 low power processor with integrated I/O and 2D graphics engine.

2 Video Output

LVDS video output for flat panel displays (2a *on back side*).
Standard analog VGA output (2b).
Simultaneous output from both ports.

3 Network Support

Dual Ethernet interfaces, autodetect 10BaseT / 100BaseTX with network boot capability.

4 RAM *(on front and back sides)*

Up to 1 GB soldered-on memory.

5 SATA

One SATA 1.5 Gb/s port supports high-capacity storage (solid-state drives or rotating media).

6 Device I/O

Four USB 2.0 ports support keyboard, mouse, and other devices (6a). Two RS-232/422/485 and two RS-232 serial ports, three 8254 timer/counters, eight 3.3V digital I/O lines, and USB audio support (6b).

7 Mini PCIe / mSATA Socket

Supports Wi-Fi modems, Ethernet, Analog I/O, Serial ports, GPS, MIL-STD-1553, Ethernet, solid-state mSATA drives, and other plug-in devices

8 MicroSD Socket *(on back side)*

Supports removable microSD card solid-state drives

9 SPI Interface

Supports SPI and SPX devices, including low cost analog and digital modules.

10 PC/104-*Plus* Expansion

Industry-standard ISA and PCI expansion connectors.

11 Main Power Input

5V Input ±5%

● Industrial Temperature Versions

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

● MIL-STD-202G

Qualified for high shock and vibration environments.

● Software Support

Compatible with a variety of popular x86 operating systems including Windows, Windows Embedded, and Linux.
Linux support includes VersaAPI software for onboard I/O devices.

Back side

Tailor Fox to Your Exact Requirements

Customization options are available in quantities as low as 100 pieces.

- Conformal Coating
- Custom Cabling
- Connector & I/O Changes
- Custom Testing
- Custom Labeling
- BGA Underfill
- BIOS Modifications
- Software and Drivers
- Revision Locks
- Custom Screening
- Application-Specific Testing
- And more –

Specifications

General

General	
Board Size	PC/104 standard: 108 mm x 96 mm (4.23" x 3.77")
Weight	120 grams (4.23 oz.)
Processor	DMP Vortex86DX2 32-bit
Input Voltage	5V +/- 5%

Power Requirements	*Model*	*Idle*	*Typical*	*Max.*
	VL-EPM-19SAK	6.40W	6.73W	7.05W
	VL-EPM-19SBK	7.05W	7.10W	7.15W
	VL-EPM-19EAK	6.30W	6.65W	7.00W
	VL-EPM-19EBK	6.50W	6.78W	7.05W

System Reset & Hardware Monitors	Major voltage rails monitored. Watchdog timer with programmable timeout. CPU temperature monitoring. Push-button reset.
Stackable Bus	PC/104-*Plus* expansion site
Manufacturing Standards	IPC-A-610 Class 2 modified
RoHS	Compliant

Environmental

Environmental		
Operating Temperature	*See Ordering Information for Specific Models*	
Storage Temperature ◊	-40° to +85°C	
Altitude	Operating*	To 4,570m (15,000 ft.)
	Storage	To 12,000m (40,000 ft.)

Airflow Requirements	*Temp. Range*	*Airflow Requirements*
	Standard 0° to +60°C	0.5 Linear Meters per Second (100 Linear Feet per Minute)
	Extended -40° to +85°C	0.5 Linear Meters per Second (100 Linear Feet per Minute)

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

‡ TVS protected port (enhanced ESD protection)

\# Power pins are overload protected

◊ Derate -1.1°C per 305m (1,000 ft.) above 2,300m (7,500 ft.)

* For extended altitude information contact VersaLogic Sales Dept.

¤ MIL-STD-202G shock and vibe levels were used to illustrate the overall ruggedness of this product. Certification at higher levels or different types of shock or vibration methods per the specific requirements of the application is available. Contact a VersaLogic Sales Engineer for further information.

Specifications are subject to change without notification. PC/104 and PC/104-*Plus* are trademarks of the PC/104 Consortium. All other trademarks are the property of their respective owners.

Memory

Memory	
System RAM	Up to 1 GB DDR2 soldered-on memory.

Video

Video	
General	Integrated video controller.
VRAM	Up to 64 MB shared DRAM frame buffer.
Desktop Display Interface ‡	Standard analog output (VGA). Up to 1920 x 1440 (60 Hz). 32-bit. 2 mm IDC connector.
OEM Flat Panel Interface #	LVDS interface. 18/24-bit. Up to 1024 x 768 (60 Hz). 8 bpp. CMOS-selectable TFT panel types. Support for FPD power control.

Mass Storage

Mass Storage	
Rotating Drive / Flash / Solid-State Drives	One SATA 1.5 Gb/s port with latching connectors
	One Mini PCIe / mSATA socket (SATA signaling, bootable)
	One microSD socket. Supports up to 32 GB. Bootable.

Network Interface

Network Interface	
Ethernet ‡	Two autodetect 10BaseT/100BaseTX ports with latching pin headers.
Network Boot Option	Via BIOS extension

Device I/O

Device I/O	
USB # ‡	Four USB 2.0 host ports.
COM 1 / 2 ‡	RS-232 16C550 compatible.
COM 3 / 4 ‡	RS-232/422/485 selectable. 16C550 compatible.
Audio	Optional. Use VL-ADR-01 audio interface.
Counter / Timers	Three 8254 16-bit timers
Digital I/O	Eight TTL I/O lines (3.3V)

Other I/O

Other I/O	
Mini PCIe / mSATA Socket	Full-size Mini PCIe / mSATA socket. Supports Wi-Fi modems, GPS receivers, solid state mSATA drives, and other plug-in modules.
SPI Interface	Supports SPI and SPX devices. Supports up to two SPX modules.

Software

Software	
BIOS	AMI BIOS. Support for USB keyboard/mouse and USB boot.
VersaAPI	VersaLogic Application Programming Interface to support on-board I/O devices (Linux only).
Sleep Mode	None
Operating Systems	Compatible with most x86 operating systems including Windows, Windows Embedded, and Linux. Refer to the detailed software compatibility section on the VersaLogic website for complete operating system information. **Constraints for Windows 7 and Windows Embedded 7 operating systems require a platform with a minimum of 1 GB RAM.**

Ordering Information

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

Model	Nominal CPU Speed	Memory Size	Operating Temp.	Cooling
VL-EPM-19SAK	933 MHz	512 MB	0° to +60°C	Heat Sink
VL-EPM-19SBK	933 MHz	1 GB	0° to +60°C	Heat Sink
VL-EPM-19EAK	800 MHz	512 MB	-40° to +85°C	Heat Sink
VL-EPM-19EBK	800 MHz	1 GB	-40° to +85°C	Heat Sink

Accessories

Part Number	Description
Cable Kit	
VL-CKR-FOX	Development Cable kit for EPM-19. Includes: VL-CBR-4005, 1014 (x2), 1008, 1204, 1604, 0702, and HDW-105.
VL-CBR-4005	Primary Breakout Cable: 18" 2mm Latching 40-pin to 40-pin
VL-CBR-1014	12" Pico-Clasp to dual DB-9
VL-CBR-1008	ATX Power Adapter Cable, RoHS
VL-CBR-1204	12" 12-pin Pico-Clasp / 15-pin VGA, RoHS
VL-CBR-1604	12" Dual Latching Ethernet16-pin Clik-Mate to 2 RJ-45, RoHS
VL-CBR-0702	20" SATA cable – rugged latching
VL-HDW-105	0.6" standoff package (metric thread)
Cables	
VL-CBR-0203	6" 2-pin Latching Battery Module, RoHS
VL-CBR-0401	6.25" ATX to SATA power cable
VL-CBR-0503	0.5 m USB 2.0 Male A to Male Micro-B Cable (for ADR-01)
VL-CBR-0901	9" 9-Pin Pico-Clasp to Dual SPX Cable, RoHS
VL-CBR-2014	LVDS to VGA Adaptor Board, RoHS
VL-CBR-2015	20" 24-bit LVDS Hirose Cable, RoHS
VL-CBR-2016	20" 18-bit LVDS FPD Cable with JAE Connector, RoHS
VL-CBR-2017	20" 1-Ch LVDS 20-pin Molex to 1.25mm 20-pin Hirose, RoHS
Audio	
VL-ADR-01	USB to Audio Adapter
Solid-State Storage (flash memory)	
VL-F41-xxxx	microSD card (SDIO), SLC, industrial temp.
Drives	
VL-HDS35-xxx	3.5" hard drive (SATA)
Hardware	
VL-PS200-ATX	Bench-top / development power supply
VL-HDW-106	0.6" standoffs, English thread (four per kit)
VL-HDW-108	Mini PCIe / mSATA hardware kit (metric thread) 2.5 mm
Miscellaneous	
VL-HDW-111	Half to Full Size Mini PCIe Adapter kit. Metal adapter and screws (2)
VL-HDW-203	PC/104 extractor tool (metal)

Expansion Modules

Part Number	Description	Form Factor
Network		
VL-MPEe-E3E	Gigabit Ethernet adapter	Mini PCIe
VL-MPEe-FW1E	1394 FireWire Module	Mini PCIe
Serial I/O		
VL-MPEe-U2E	Quad serial plus twelve GPIOs	Mini PCIe
Analog & Digital I/O		
VL-MPEe-A1E	Analog input (12-bit resolution)	Mini PCIe
VL-MPEe-A2E	Analog input (16-bit resolution)	Mini PCIe
VL-SPX-1	Analog Input Module 8-Channels	SPX
VL-SPX-2	Digital I/O Module 16-lines	SPX
VL-SPX-4	Analog Output Module 4-channels 12-bit	SPX
VL-SPX-5	Solid State Switch Module 8-channel	SPX
GPS		
VL-MPEu-G2E	GPS receiver	Mini PCIe
Video		
VL-EPM-V7E	Video Expansion Module: VGA and LVDS	PC/104-*Plus*
VL-MPEe-V5E	VGA and LVDS Interface	Mini PCIe
Solid-State Storage (flash memory)		
VL-MPEs-F1Exx	mSATA module (4/16/32 GB) (SATA)	Mini PCIe
Adapters		
VL-MPEs-S3E	SATA adapter	Mini PCIe

Mini PCIe Modules

Take the Risk out of Embedded Computing

Whether it's selecting the optimum solution for your application, lending expertise 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 us today to learn more.

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