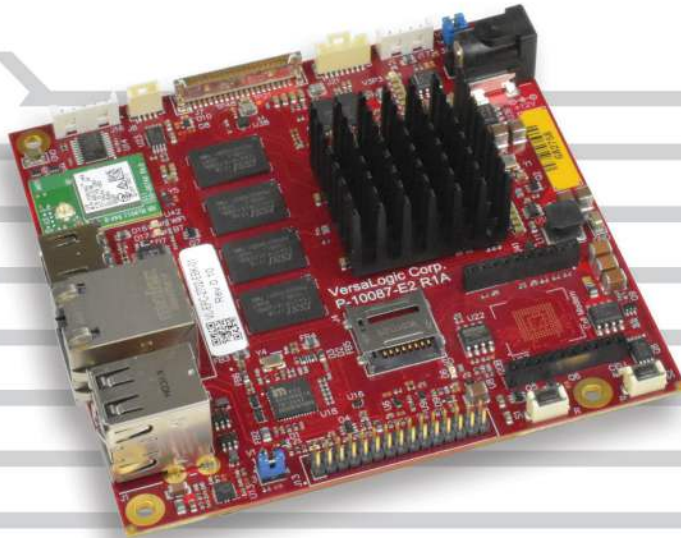


Swordtail

Arm-based Single Board Computer



95 x 95 mm
(3.7 x 3.7")

Overview

The Swordtail is a complete single board computer. It features Wi-Fi, Bluetooth®, and cellular options for applications that operate without a wired data connection. These Arm®-based computers are available with power-efficient, dual-core or quad-core i.MX6 CPUs. The Swordtail is ideal for applications that demand rugged low-power solutions such as industrial machine automation, transportation, medical, kiosks, and industrial IoT.

Unlike Arm-based “modules”, Swordtail is a complete board-level computer. Additional carrier boards, connector boards, or I/O expansion boards are not required for operation. Swordtail boards are delivered with on-board soldered-down RAM, ready to plug-in and run. To simplify mounting and future upgrades, the Swordtail leverages the COM-Express standard for its footprint and mounting points.

Like all VersaLogic products, the Swordtail SBC is engineered and tested to be rugged. It is fully validated for operation in unforgiving environments with extreme temperatures, mechanical shock, and vibration.

continued ▶

Highlights

- Complete single board computer
- -40° to +85°C operation
- Dual- or quad-core i.MX6 processor
- Wi-Fi 802.11 b/g/n
- Bluetooth 4.2
- Cellular-compatible socket
- Shock and vibration per MIL-STD-202H
- Standard 95 x 95 mm size
- Low power draw
- Fanless operation
- Input power conditioning
- Up to 4 GB soldered-on RAM
- Gigabit Ethernet
- HDMI (with audio)
- LVDS (with backlight and touchscreen support)
- USB 2.0 ports
- Serial I/O (RS-232)
- MicroSD card socket
- Up to 32 GB eMMC Flash
- CAN bus and I2C
- Linux support

Overview *...continued*

In addition to the wireless connections, the Swordtail provides connectivity via Gigabit Ethernet, USB, GPIO, and CAN bus interfaces. HDMI video, audio support, and LVDS panel/touchscreen support are also included.

Both Wi-Fi and Bluetooth radios are included on board. A NimbleLink Skywire™ socket supports a wide range of optional cellular and other wireless plug-ins.

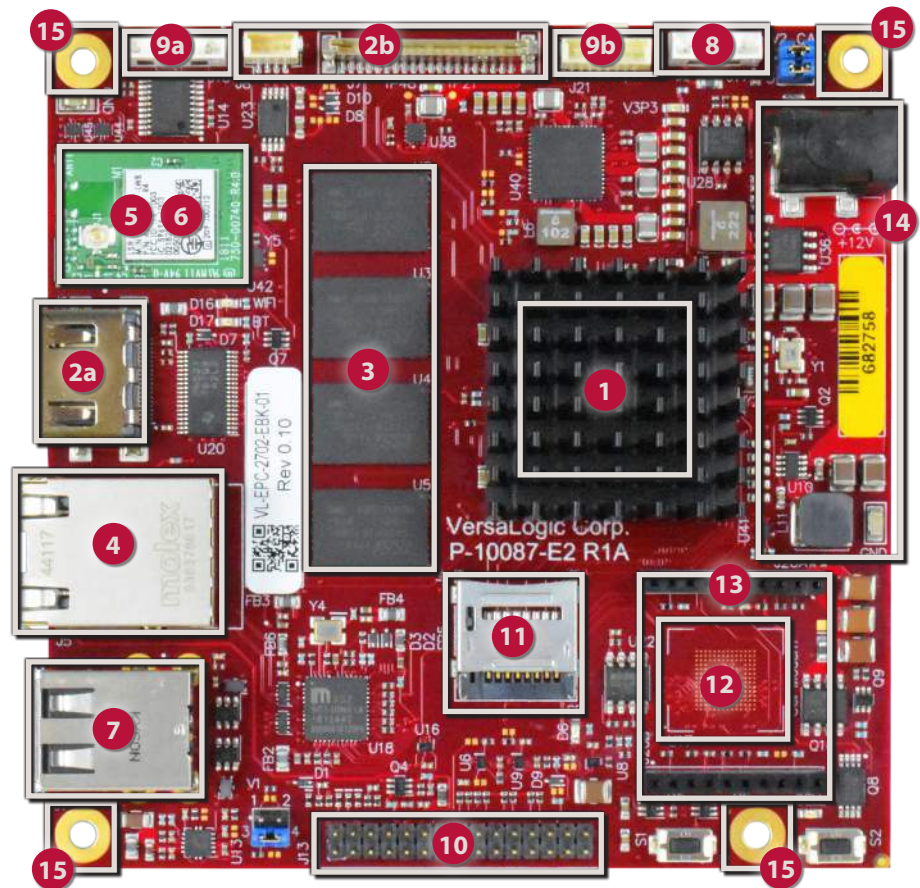
VersaLogic's 10+ year product life support programs ensure long-term deployment in the field, free from expensive upgrades and migrations that come from short, disposable lifecycle products. ■

Features

- 1 NXP i.MX6 Cortex®-A9 32-bit Processor**
i.MX6 Quad or i.MX6 DualLite Arm processor with integrated I/O and 2D/3D graphics engine.
- 2 Video Output with touchscreen support**
HDMI video output with Audio (2a); LVDS (2b).
- 3 RAM**
1 GB to 4 GB soldered-on memory.
- 4 Wired Network**
Gigabit Ethernet interface with network boot capability.
- 5 Wi-Fi**
802.11 b/g/n Wi-Fi.
- 6 Bluetooth**
Bluetooth 4.2.
- 7 USB**
Two USB 2.0 ports.
- 8 CAN**
CAN bus port.
- 9 Serial I/O**
Serial I/O port (Debug) (9a) and I2C (9b).
- 10 GPIO**
Nine 3.3V GPIO.
- 11 MicroSD Socket**
Supports removable microSD card solid-state drives (bootable).
- 12 eMMC Flash**
Up to 32 GB of soldered-on Flash storage.
- 13 Cellular Expansion**
Expansion socket for cellular or other wireless technologies.
- 14 Power Conditioning**
8 to 17V DC input (12V nominal) power input.
- 15 Standard Mounting**
Same mounting holes as COM Express Compact products.

- Industrial Temperature Operation**
Full -40° to +85°C operation for harsh environments.
- MIL-STD-202H**
Qualified for high shock and vibration environments.

- Software Support**
Compatible with a variety of popular Arm operating systems including Linux and Android.
Support includes VersaAPI software for onboard I/O devices.



Modify Swordtail to Your Exact Requirements

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

- On-board RAM Size
- On-board Flash Storage Size
- Standard Temperature Version
- Conformal Coating
- Connector & I/O Changes
- Custom Testing
- Custom Labeling
- BGA Underfill
- U-Boot Modifications
- Revision Locks
- Custom Screening
- Application-Specific Testing
- Etc.

Specifications

| General | | | | |
|---|---|----------------|-------------|-------------|
| Board Size | 95 x 95 x 21.4 mm (3.7 x 3.7 x 0.85") | | | |
| Weight | 68 grams (2.4 oz.) | | | |
| Processor | NXP i.MX6 Quad or i.MX6 DualLite | | | |
| Input Voltage | 8V to 17V DC (12 V DC nominal) | | | |
| Power Requirements § | <i>Model</i> | <i>Standby</i> | <i>Idle</i> | <i>Busy</i> |
| | VL-EPC-2702-EBK-01 | 1.08 W | 1.72 W | 2.73 W |
| | VL-EPC-2702-EDK-02 | 1.15 W | 1.95 W | 3.84 W |
| | VL-EPC-2702-EDK-02-8 | 1.25 W | 2.21 W | 4.15 W |
| System Reset and Hardware Monitors | Major voltage rails monitored. Watchdog timer with programmable timeout. CPU temperature monitoring. Push-button reset. | | | |
| Regulatory Compliance | RoHS (EU 2015/863), Conflict Minerals compliant. | | | |

| Environmental | | |
|--------------------------------------|---|--------------------------|
| Operating Temperature ◊ | -40° to +85°C | |
| Storage Temperature | -40° to +85°C | |
| Altitude | Operating* | To 4,570 m (15,000 ft.) |
| | Storage | To 12,000 m (40,000 ft.) |
| Airflow Requirements | 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-202H method MIL-STD-202-204, Condition A: 2g | |
| Vibration, Random ✕ | MIL-STD-202H method MIL-STD-202-214, Condition A: 5.35g rms | |
| Mechanical Shock ✕ | MIL-STD-202H method MIL-STD-202-213, Condition G: 20g half-sine | |

| Memory | |
|-------------------|---|
| System RAM | Up to 4 GB DDR3L soldered-on memory.*** |

| Video | |
|------------------------------------|---|
| General | Integrated video controller. Supported video decoders: DivX 3/4/5/6, H.263, H.264, MJPEG, MPEG-1/2, MPEG-4, VC1. Video encoders: H.263, H.264, MJPEG, MPEG-4. |
| Desktop Display Interface ‡ | HDMI V1.4 port (with sound) |
| OEM Flat Panel Interface # | LVDS interface. 24-bit panels support up to 1366 x 768 resolution. Support for FPD power control, backlight control, and touchscreen I2C with interrupt interface. |

‡ TVS protected port (enhanced ESD protection).

Power pins are overcurrent protected.

Please contact VersaLogic Sales for a list of compatible modules.

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

* For extended altitude information contact VersaLogic Sales.

§ Represents operation at +25°C and +12V running Yocto Linux with HDMI display, Micro SD boot card, and USB keyboard/mouse. Idle and Busy power measured with Wireless LAN connected and Ethernet disabled. Busy power measured with Himeno benchmark test. Power consumed is primarily due to the peripherals plugged into the board.

✕ MIL-STD-202H shock and vibration levels are used to illustrate the overall ruggedness of this product. Certification at different levels or types of shock and vibration is available. Contact VersaLogic Sales for further information.

*** Optional. Not available on all models. Contact VersaLogic Sales for more information.

Specifications are subject to change without notification. Arm and Cortex are trademarks of Arm Ltd. Bluetooth is a trademark of Bluetooth SIG, Inc. All other trademarks are the property of their respective owners.

| Mass Storage | |
|-----------------------------------|--|
| Flash / Solid-State Drives | microSD socket, bootable Optional bootable eMMC MLC Flash drive (chip). 1 SKU with 8 GB installed. Up to 32 GB possible. |

| Network Interface | |
|----------------------------|--|
| Ethernet ‡ | One autodetect 10BaseT/100BaseTX/1000BaseT port. Latching connector. |
| Network Boot Option | Supported |

| Device I/O | |
|--------------------|--|
| USB | Two USB 2.0 host ports # ‡ |
| Serial I/O | One RS232 debug port ‡ |
| Digital I/O | Nine CMOS level I/O lines (3.3V) |
| PWM | 0 to 3 PWM outputs. Use of PWM outputs reduces GPIO pin count. |
| I2C | One I2C interface, with interrupt input support. |
| CAN Bus | One channel CAN 2.0B, ISO 11898-2 compliant |

| Other I/O | |
|------------------------|---|
| Wi-Fi | Wi-Fi 802.11b/g/n, one band, b@11Mbps, g/n@54Mbps data rate via SDIO. |
| Bluetooth | Bluetooth 4.2. |
| Cellular socket | 20-pin NimbleLink Skywire socket.## |

| Software | |
|--------------------------|---|
| Power Mode | i.MX6 Power Modes: - Run - Wait - Stop - Dormant |
| Operating Systems | Compatible with most Arm operating systems including Linux and Android. |

Ordering Information

| Model | CPU Model | Cores | Nominal CPU Speed | RAM Memory | eMMC Flash | Operating Temp. |
|----------------------|----------------|-------|-------------------|------------|------------|-----------------|
| VL-EPC-2702-EBK-01 | i.MX6 DualLite | Dual | 800 MHz | 1 GB | – | -40° to +85°C |
| VL-EPC-2702-EDK-02 | i.MX6 Quad | Quad | 800 MHz | 2 GB | – | -40° to +85°C |
| VL-EPC-2702-EDK-02-8 | i.MX6 Quad | Quad | 800 MHz | 2 GB | 8 GB | -40° to +85°C |

Other configurations are possible. Please contact VersaLogic Sales at (503) 747-2261 to discuss requirements!

Accessories

| Part Number | Description |
|---|---|
| Cable / Development Kit | |
| VL-CKR-SWORDTAIL | Swordtail development / evaluation kit. Includes VL-F41-8SBN-LINUX3, CBR-3004, CBR-0504, PS-WALL12-24, CBR-ANT04, CBR-0205. |
| VL-F41-8SBN-LINUX3 | Linux Operating System, 8 GB MLC microSD card with bootable Linux, standard temperature. |
| VL-CBR-3004 | 0.5m 30-pin 2mm IDC to Ribbon Cable |
| VL-CBR-0504 | 0.3m 2mm 5-pin to DB-9M |
| VL-PS-WALL12-24 | Wall Mount 12V 24W Power Supply |
| VL-CBR-ANT04 | 2.4 GHz Dipole Antenna |
| VL-CBR-0205 | Antenna Interface Cable (U.FL to RP-SMA) 105 mm |
| VL-CBR-0405 | CAN bus cable, 2 mm 4-pin to 2 mm 4-pin MicroClasp, 1m |
| VL-CBR-0406 | CAN bus cable, 2 mm 4-pin MicroClasp to DB9 connector |
| VL-CBR-2014 | LVDS to VGA adapter |
| VL-CBR-2015 | 20" 24-bit LVDS 20-pin 1mm Hirose to 1mm Hirose |
| VL-CBR-0404 | LED Back Light, 4-pin Pico-Clasp / 4-pin IDE Power to 6-pin 12V, 500mm |
| VL-CBR-0811 | 20" 8-pin Pico-Clasp to Pico-Clasp cable |
| Solid-State Storage (flash memory) | |
| VL-F41-xxxx | microSD card (SDIO), SLC, industrial temperature |

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