

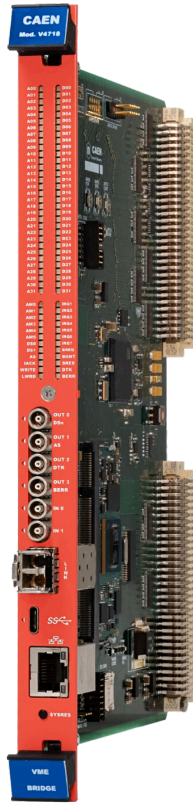
New

V4718

**VME to USB
3.0/Ethernet/Optical
Link Bridge**



Features



- USB 3.0, Gigabit Ethernet and CONET2 (CAEN Daisy Chainable Optical Link Protocol) interfaces
- Designed for high performances at high transfer rates
- Compliant with **A2818**, **A3818**, **A4818**, and **A5818** cards for optical link control
- Up to 8 VME crates controlled by one CONET2 link
- VME Master (arbiter or requester)
- Cycles: RW, RMW, BLT, MBLT, IACK, ADO, ADOH
- Addressing: A16, A24, A32, CR/CSR, LCK
- Data width: D8, D16, D32, D64
- System Controller capabilities
- Interrupt handler
- Transparent interrupt propagation from VME to PCIe
- Front panel Dataway Display (remotely readable from PC)
- Front-panel LEMO TTL/NIM fully programmable I/Os (4 outputs and 2 inputs)
- Fully remotely controllable by Web Interface
- Libraries, Demos and Software tools for Windows ® and Linux ®
- Custom software can run directly on the embedded Linux-based MPSoC

Description

The CAEN **Mod.V4718** is CAEN New Bridge with enhanced data rate and extended interfacing capabilities, thanks to the on-board MPSoC (including an ARM processor running Linux). The board is a VME Master which can be controlled by an external PC via USB 3.0 and Gigabit Ethernet connections. Optical link interface is also available (CAEN CONET protocol). The mechanics is 1-unit wide VME 6U.

The optical link connection between the V4718 and the host PC requires the **A5818** PCI Express CONET2 Controller or the **A4818** USB3-to-CONET Bridge, and an optical fiber cable (**AI2700** - Optical Fiber Series). The V4718 is also compatible with CAEN **A3818** PCI Express CONET Controller and CAEN **A2818** PCI CONET controller. Multi-crate sessions can be easily performed thanks to the optical Daisy chain capability: up to eight V4718 units can be controlled by a single **A2818/A3818/A4818** building a CONET Optical Network.

The V4718 can perform all the cycles foreseen by the VME64 standard except those intended for 3U boards. The Bridge can operate as VME System Controller (normally when plugged in the slot 1) acting as a Bus Arbiter in Multi-Master systems. The activity on the VME bus can be monitored in detail both locally (through an 88-LED DataWay Display) and remotely.

The front panel of the V4718 hosts 6 TTL/NIM programmable I/Os on LEMO connectors: four outputs (default assignment is: DSN, AS, DTK, BERR) and two inputs. The I/Os can be programmed via USB, Ethernet and Optical Link to implement functions like Timer, Counter, Pulse generator, I/O register, and others.

It is possible to integrate the V4718 into the most common Windows® and Linux® computers by CAEN dedicated drivers. Middleware libraries and useful example demos are also provided. Moreover, the presence of an embedded Linux- based CPU gives the chance of running custom software directly on-board.

The user can completely set and monitor the V4718 by Web Interface, including the firmware upgrade.

Technical Specifications

PHYSICAL

Form Factor

1-unit wide VME 6U

Weight

350 g

PC INTERFACE

USB

USB 3.0
Type-C socket

Ethernet

Gigabit Ethernet
RJ45 shielded jack

Optical Link

CONET (CAEN proprietary protocol)
SFP+ connector

TRANSFER RATE

Maximum transfer rate with a CAEN slave readout in MBLT64:

- Up to 80 MB/s via CONET2
- Up to 60 MB/s via USB 3.0
- Up to 60 MB/s via Ethernet

ON-BOARD CPU

Xilinx Zynq® UltraScale + MPSoC (Multiprocessor System-on-Chip)

ADDRESSING

A16, A24, A32, CR/CSR, LCK; ADO, ADOH cycles

DATA CYCLES

D08, D16, D32 for R/W and RMW; D16, D32 for BLT, D64 for MBLT

INTERRUPT CYCLES

D08, D16, D32, IACK cycles

INTERRUPTS TRANSFER AND MONITOR

Optical Link

VME interrupts IRQ[7:1] passed directly from VME to the PCIe bus via optical link; host system is notified asynchronously (polling not required)

USB

VME interrupts are not directly passed to the PC; host system has to poll IRQ[7:1] via USB

Ethernet

VME interrupts are not directly passed to the PC; host system has to poll IRQ[7:1] via Ethernet

LED DISPLAY

Data bus, address bus, address modifier, interrupt request, control signals

PANEL I/Os

OUT[0:3]

4 signal outputs
Single-ended NIM/TTL ($Z_{in} = 50 \Omega$)
LEMO 00 female socket
Software programmable

IN[0:1]

2 signal inputs
Single-ended NIM/TTL (HW programmable)
 $Z_{in} = 50 \Omega$ or $1 \text{ k}\Omega$ hardware selectable
LEMO 00 female socket
Software programmable

SOFTWARE

- Windows® and Linux® support
- Drivers for the CONET communication link
- Web Interface (board configuration, firmware upgrade, read/write access to the VME bus)
- Middleware C/C++ libraries
- Linux OS embedded on ARM processor

POWER REQUIREMENTS

1.3 A @ +5V
50 mA @ +12V
180 mA @ -12V

Ordering Options

Code	Description	
WV4718XAAAAA	V4718 - VME64-USB 3.0, Ethernet and Optical Link Bridge	RoHS

Related Software

CAENVMELib Library



Interface library for CAEN VME Bridges

CAEN Toolbox



Multi-Functional Software Suite for the Upgrade of Front-end Boards, Bridges and Power Supplies

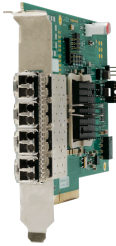
Related Products

A4818



USB 3.0 to CONET2 Adapter

A5818



CONET2 Controller based on PCI Express Gen 3 interface

VME8001



1U 2 Slot VME64 Mini Crate

VME8008B



4U 8 Slot VME64 Mini Crate

VME8011



7U 21 Slot VME64 Low Cost Crate

VME8100



8U 21 Slot VME64/64X Enhanced Crate Series

VME8004X



2U 4 Slot VME64X Mini Crate

NV8020A



7U CRATE VME/NIM 8 slot VME64 365W, 5 slot NIM 150W

VME8004B



2U 4 Slot VME64 Mini Crate

VME8008X



4U 8 Slot VME64X Mini Crate

VME8010



7U 21 Slot VME64 Low Cost Crate

μ-crate



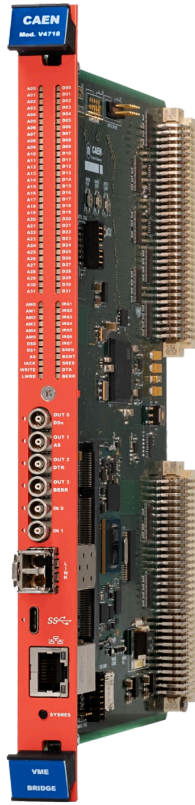
Desktop single-slot VME64X Crate

VME8200



9U 21Slot VME64X Enhanced Crate series

Gallery



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