VM-USB VME Controller with USB-2 interface

The VM-USB is a VME master with high speed USB2 interface. Enhanced functionality is given by the programmable internal FPGA logic which provides a VME command sequencer with 4kB stack and 28kB data buffer. Combined with the 4 front panel I/O ports this allows VME operation and data acquisition / buffering without any PC or USB activity.

All VM-USB logic is controlled by the XILINX Spartan 3 family FPGA. Upon power-up the FPGA boots from a flash memory. The configuration flash memory can be reprogrammed via the USB port, allowing convenient updates of the firmware.

Features

- system controller capability with slot-one bus arbitration and/or interrupt handling.
- Full interrupt capability, VM-USB responds to all 7 interrupt requests IRQ1-7 and can generate any of the 7 interrupts.
- All logical operations are performed by a Spartan 3 series FPGA (XC3S400)
- 4 firmware / configurations selectable on front panel rotary switch for FPGA boot upon power-up, all four sectors of the firmware / configuration flash are reprogrammable via USB.
- 2 NIM/TTL input and 2 NIM/TTL output ports with user-programmable functionality including trigger, counter, delay-gate-generator, pulser.
- 4 user-programmable diagnostic LED's
- VME sequencer: Internal FPGA can be programmed to operate as command sequencer with 4kB command stack and 28kB for data buffering (FIFO or dual-port RAM), stack is programmable via USB or VME.
- Read-out modes
  - Single word transfer D16, D24, D32, block mode BLT
  - Addressing modes A16, A24, A32
  - Autonomous (intelligent) readout pursuant to user-programmed stack. May include conditional readout controlled by the content of a hit register. May include multiple, conditional command stacks, action triggered by either USB, VME or external signal
  - Total block memory of 32-kBytes that can be divided between the data buffer (FIFO) with programmable level of transfer trigger and command stack in a way different from the default 28/4 split.
- Microsoft Windows (XP…W8 32-bit/64) and Linux support, LabView VI's (version 7.1 and higher),
- supported by scientific data acquisition software packages:
  - MSU NSCLDAQ (Linux)

Ordering Information

Standard configurations (others possible by request).

Part Number	Description
VM-USB	VM-USB, USB cable, CD-ROM

Technical Information

Specifications:

Packaging	single wide 6U VME module
Interface	USB2/ USB1 auto-detecting / ranging, Connector: USB type B
Inputs	2 user inputs, NIM / TTL level jumper selectable, LEMO connectors
	multiplexed, firmware dependent functionality
Outputs	2 multiplexed outputs for VME, USB and DAQ signals/ TTL level jumper selectable, LEMO connectors, function firmware dependent
Display	4 programmable User LED's (green, red, green, yellow)
	3 USB status LED's (USB1, USB2, Failure)
VME master modes	A16, A24, A32, D8, D16, D24, D32, BLT32, BLT16
System Controller	bus arbiter and / or interrupt handler
Firmware	Software upgradeable, 4 firmware locations

	Selection via 8 position switch (P=program, C=use)
Performance	D32 via USB (EASY-VME): 128 kB/s
	D32 with data buffering: 9...13MB/s (depending on slave module)
	BLT: 10...15MB/s (depending on slave module)

CONTACT

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