

DT5495 - V2495

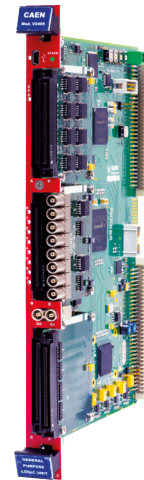
Programmable Logic Unit



Expand the logic capabilities of your experiment with this new and fully programmable FPGA-based board.

Features

- User Programmable FPGA
- Compact Desktop form factor
- Up to 162 inputs, up to 130 outputs
- LVDS/ECL/PECL/NIM/TTL
- 3 expansion slots for piggyback board:
 - A395A 32 LVDS/ECL/PECL input ch.
 - A395B 32 LVDS output ch.
 - A395C 32 ECL output ch.
 - A395D 8 NIM/TTL input/output ch.
 - A395E 8 Analog output 16bit ch.
- 32 independent programmable Gate and Delay Generator
- Ethernet (DT5495) and Mini-USB 2.0 Connection
- Available in VME version V2495
- Supported by SCI-Compiler software tool



VME version is also available

Overview

The DT5495 and V2495 are the completely new versions of the CAEN bestseller VME General Purpose Programmable Unit V1495. This new design brings a simpler connectivity, a 150% increase in the logic resources, more programmable Gate&Delay generators and it does all this remaining compatible with previous I/O expansion boards. The boards are a suitable solution for the implementation of digital

functions such as Coincidence, Trigger Logic, Gate and Delay generator, Input/Output Register and more.

The architecture of the DT5495 - V2495 is based on the User FPGA (Altera Cyclone V GX C4, 50K Logic Elements) which is directly interfaced to the front panel I/Os (up to 162 inputs and up to 130 outputs) and to an internal local bus.

The V2495 can be controlled and programmed "on the fly"

via the VME Bus or directly through the USB connector on the front panel. A Software tool is provided for free to easily upload the custom Firmware on the User FPGA.

The DT5495 - V2495 are also completed by 32 internal delay lines that can be used to generate programmable gate and delay signals. The channel interface can be freely expanded by adding up to three independent piggyback boards (there are 3 expansion slots interfaced to the User FPGA), choosing between the five available types:

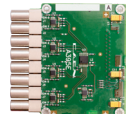
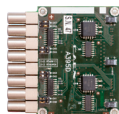
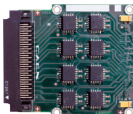
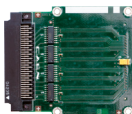
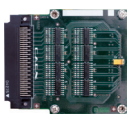
- A395A 32 LVDS/ECL/PECL input channels
- A395B 32 LVDS output channels
- A395C 32 ECL output channels
- A395D 8 NIM/TTL input/output channels
- A395E 8 Analog output 16bit channels

Therefore, the DT5495 - V2495 can achieve a maximum number of 194 I/O channels.

Ordering Option

Code	Description
WDT5495XAAAA	DT5495 - Desktop Programmable Logic Unit
WV2495XAAAA	V2495 - VME Programmable Logic Unit
WA395XAAAAAA	A395A - 32 LVDS/ECL/PECL input channels interface for Vx495 & DT5495
WA395XBAAAAA	A395B - 32 LVDS output channels interface for Vx495 & DT5495
WA395XCAAAAA	A395C - 32 ECL output channels interface for Vx495 & DT5495
WA395XDAAAAA	A395D - 8 NIM/TTL input/output channels interface for Vx495 & DT5495
WA395XEAAAAA	A395E - 8 channel 16Bit ± 5V DAC for Vx495 & DT5495
WA967XAAAAAA	A967 - 32 Channel Cable Adapter (1x32 to 2x16) for V767, V862, V1190, VX1190, Vx495, DT5495
WFW2495SCXAA	FW2495SC - 160 Channels Latching Scaler for V2495 & DT5495

Piggyback Boards Compare



Model	A395A	A395B	A395C	A395D	A395E
No. of channels	32	32	32	8	8
Channel type	Digital Input	Digital Output	Digital Output	Digital I/O selectable	Analog Output
Description	Differential LVDS/ECL/PECL	Differential LVDS	Differential ECL	NIM/TTL	16-bit resolution Output range: ± 5 V @10 kΩ RL ± 4 V @200 Ω RL
Note	single ended TTL optional	LVDS 100 Ω RI	ECL	NIM/TTL selectable 50 Ω Rt	DAC board equipped with DT5495 - Vx495 Firmware and VHDL source for custom development
Bandwidth	200 MHz	250 MHz	300 MHz	250 MHz	-
Front panel connector	3M P50E-068-P1-SR1 type (34+34) pins	3M P50E-068-P1-SR1 type, (34+34) pins	3M P50E-068-P1-SR1 type, (34+34) pins	LEMO 00	LEMO 00

Firmware

A set of free Firmware demos, complete of full source codes, is available to help the user Firmware development. In addition, the unit can be used as a 160 Channels Scaler thanks to FW2495SC CAEN Firmware.



All CAEN Control Software is available for free download on the web site.

Software

SCI-Compiler



DT5495 - V2495 support the SCI-Compiler software, a graphic tool which allows the user to realize a whole readout logic for ASICs connected to the module. The software generates the VHDL source code, C libraries, drivers and a C example code (to be compiled on Windows or Linux) to help integrating firmware vs software automatically without requiring to be a VHDL expert. Refer to page 14 for a detailed description.

