

DT5495

Programmable Logic Unit



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 and Mini-USB 2.0 Connection
- Available in VME version **V2495**
- Supported by **SCI-Compiler software** tool

Description

The CAEN **Mod.DT5495** is the completely new version 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 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 DT5495 can be controlled and programmed via Ethernet or Mini-USB on the front panel. A Software tool is provided for free to easily **upload the custom Firmware on the User FPGA**.

The DT5495 is 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 16 bit channels

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

Model Compare:

Piggyback	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: ± 5V @10 Ω RL ± 4V @200 Ω RL DAC board equipped with DT5495 - Vx495 Firmware and VHDL source for custom development
Note	Single ended TTL optional	LVDS 100 ΩRI	ECL	NIM/TTL selectable 50 Ω Rt	
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

FW2495SC is a FPGA firmware that allows to use the DT5495 as a **Multievent latching scaler housing up to 160 independent counting channels** (this maximum number of channels is achieved if the DT5495 is expanded with three **A395A** boards).

Technical Specifications

FORM FACTOR

Desktop module

I/O SECTIONS A and B

	Logic Direct	
Nr. of Channels 32	Signal <ul style="list-style-type: none">Differential LVDS/ECL/PECL(single ended TTL optional)	Bandwidth 200 MHz
Direction Input	<ul style="list-style-type: none">Zdiff: 100 ΩExtended Common Mode Input range: -4V to +5VFail Safe input feature	Front Panel Connector Robinson Nugent P50E-068-P1-SR1-TG type, (34+34) pins

I/O SECTION C

	Logic Direct	
Nr. of Channels 32 channels	Signal <ul style="list-style-type: none">Differential LVDSRequire 100 Ω termination	Bandwidth 250 MHz
Direction Output		Front Panel Connector Robinson Nugent P50E-068-P1-SR1-TG type, (34+34) pins

I/O SECTION G

Nr. of Channels 2	Logic <ul style="list-style-type: none">TTL IN = DirectTTL OUT = DirectNIM IN = InvertNIM OUT = Direct	Bandwidth 250 MHz
Direction <ul style="list-style-type: none">I/O (default is Output)External 50 Ω termination required when used as input	Signal Single ended NIM/TTL selectable	Front Panel Connector LEMO 00

GATE and DELAY GENERATOR

	Min.	Typ.	Max.
Minimum Delay/Gate	9.6 ns	10.7 ns	11.8 ns
Maximum Delay/Gate	631 μ s	701.2 μ s	771.5 μ s
Maximum channel-to-channel spread	20%		

COMMUNICATION INTERFACE

ETHERNET: 10/100T
USB: USB 2.0 compliant

POWER REQUIREMENTS

- 750 mA (max.) @ +12VDC
- AC-DC 12V-45W power unit included

A395A Mezzanine Board

no. of ch	32
Direction	Input
Logic	Direct
Signal	Differential LVDS/ECL/PECL (single ended TTL optional) Zdiff: 100 Ω Extended Common Mode input range: -4V to +5V Fail Safe input feature
Bandwidth	200MHz
Front Panel Connector	Robinson Nugent P50E-068-P1-SR1-TG type, (34+34) pins
Power Consumptions	0.1 A (max) @ +5V internal power supply; +12V and -12V power supply are not used

A395B Mezzanine Board

no. of ch	32
Direction	Output
Logic	Direct
Signal	Differential LVDS Requires 100 Ω termination
Bandwidth	250MHz
Front Panel Connector	Robinson Nugent P50E-068-P1-SR1-TG type, (34+34) pins
Power Consumptions	0.1 A (max) @ +5V internal power supply; +12V and -12V internal power supply are not used

A395C Mezzanine Board

no. of ch	32
Direction	Output
Logic	Direct
Signal	Differential ECL
Bandwidth	300 MHz
Front Panel Connector	Robinson Nugent P50E-068-P1-SR1-TG type, (34+34) pins
Power Consumptions	1.4 A (max) @ +5V internal power supply; +12V and -12V internal power supply are not used

A395D Mezzanine Board

no. of ch	8
Direction	Output
Logic	I/O selectable
Signal	Selectable TTL/NIM: <ul style="list-style-type: none">• TTL IN = Direct• TTL OUT = Direct• NIM IN = Invert• NIM OUT = Direct
Bandwidth	250MHz
Front Panel Connector	LEMO 00
Power Consumptions	1.1 A (max) @ +5V internal power supply; +12V and -12V internal power supply are not used

A395E Mezzanine Board

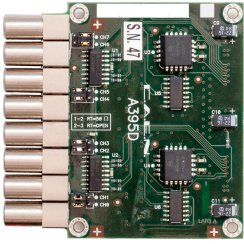
no. of ch	8
Direction	Output
Logic	Analog
Signal	16-bit resolution ±5V @10kΩ RL ±4V @200Ω RL
Bandwidth	n.a.
Front Panel Connector	LEMO 00
Power Consumptions	0.3 A (max) @ +5V internal power supply; +12V and -12V internal power supply are not used

Ordering Options

Code	Description
WDT5495XAAAA	DT5495 - Programmable Logic Unit PLUS RoHS

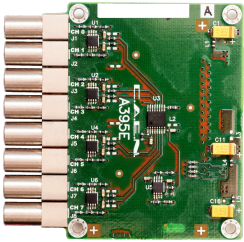
Accessories

A395D



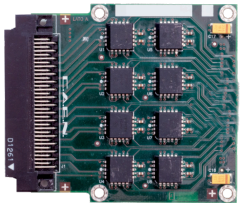
Piggyback board for Vx495 and DT5495

A395E



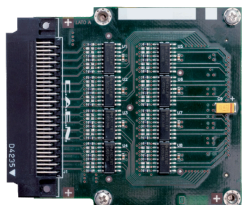
Piggyback board for Vx495 and DT5495

A395C



Piggyback board for Vx495 and DT5495

A395A



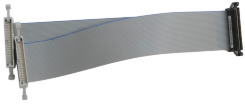
Piggyback board for Vx495 and DT5495

A966



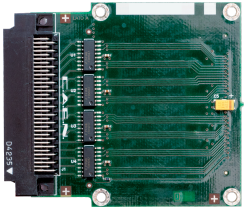
Cable assembly 68 pin P50 to four 2.54mm 16 pin male - 25 cm

A967



Cable assembly 68 pin P50 to two 2.54mm 34 pin male - 25 cm

A395B



Piggyback board for Vx495 and DT5495

Related Products

FW2495SC



128 Channels Latching Scaler for V2495 and DT5495

Sci-Compiler



Graphical Programming Language for CAEN Open FPGA Boards

V2495



Programmable Logic Unit PLUS

N1081B



NIM Four-Fold Programmable Logic Unit

CAEN PLU Library

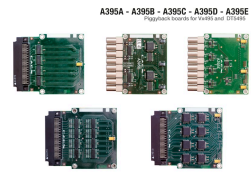


A C Library for DT5495 and V2495 boards



Firmware Upgrade Tool for Front-end Boards Bridges & VME Power Supply

Gallery



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