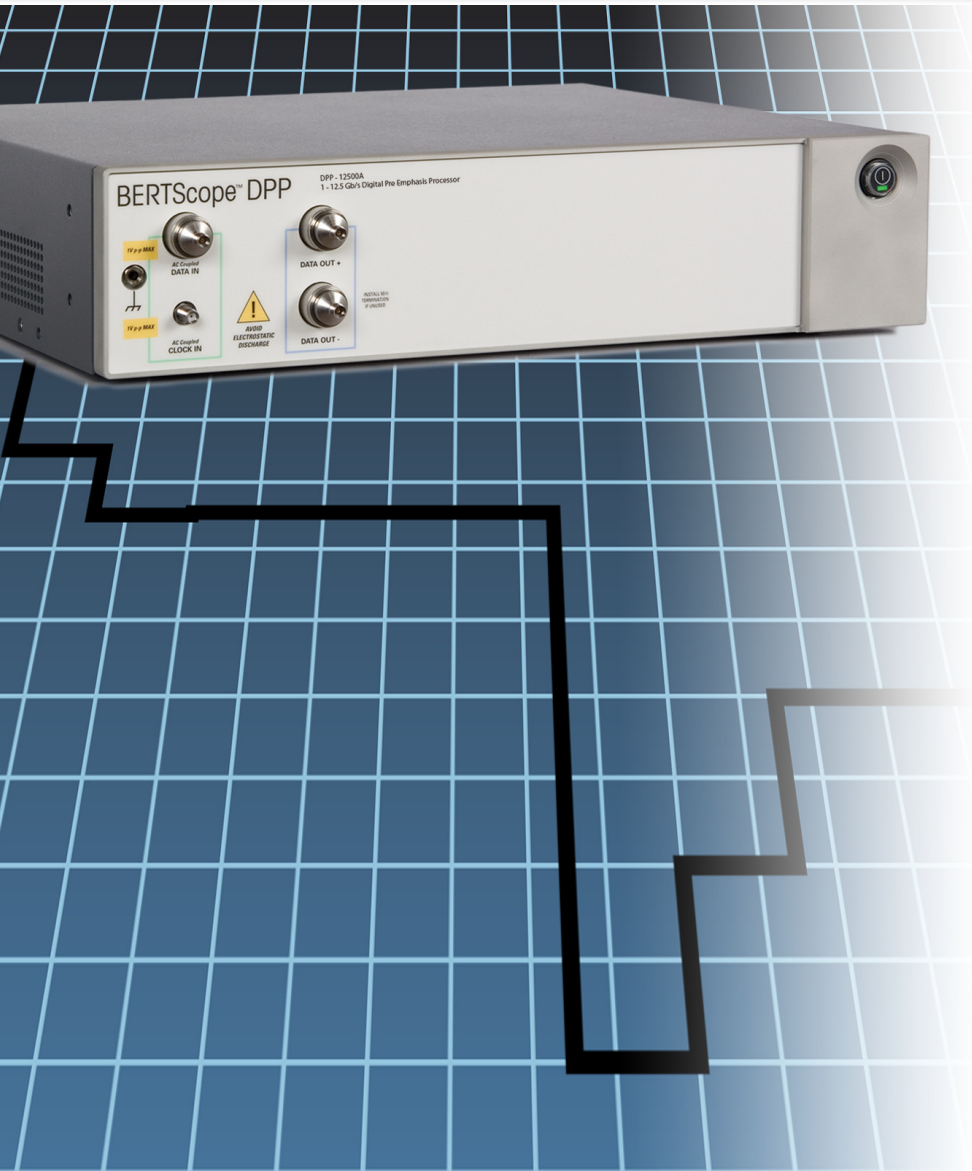


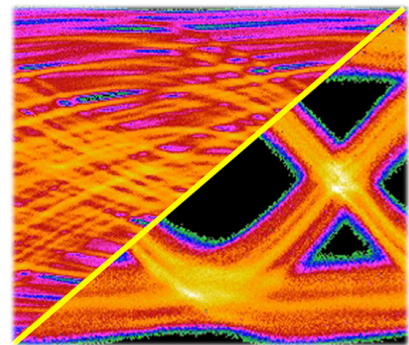
BERTScope™ DPP

Digital Pre-Emphasis Processor



Pre-Emphasis to 12.5 Gb/s

- Flexible Compliance for:
 - PCI Express
 - 10 GbE Backplanes
 - SAS
- 3 and 4 Tap Models
- Precision Control
- Selectable Cursor Position
- Flexible for Advanced R&D Applications



The Vision of a Scope, the Confidence of a BERT,
And Clock Recovery you can Count on.

SYNTHESYS
RESEARCH, INC.

BERTScope Digital Pre-Emphasis Processor

The new BERTScope DPP is a non-linear signal conditioner capable of adding controllable amounts of pre-emphasis to a signal. It takes in single ended inputs of data and clock.

Features

- 1 to 12.5 Gb/s
- 3 or 4-tap versions available
- Can be set as pre-cursor or post-cursor adjustment

Benefits

- Standards compliant, for example 10 GBASE-KR, PCIe®, SAS, DisplayPort, USB 3.0
- Exceptionally easy setup with concurrent multiple domain views.
- Precise control to correct for effects such as backplane ISI or optical effects.

Intuitive Control with Many Views

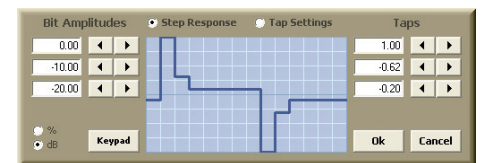
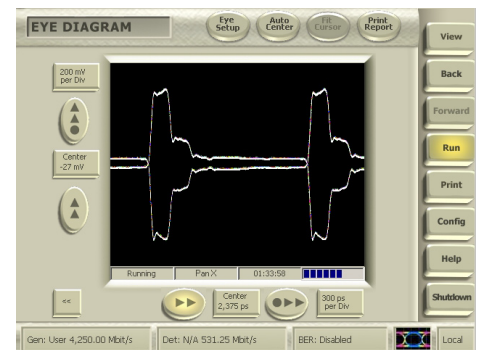
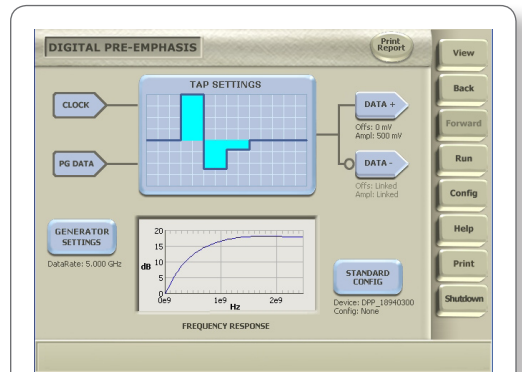
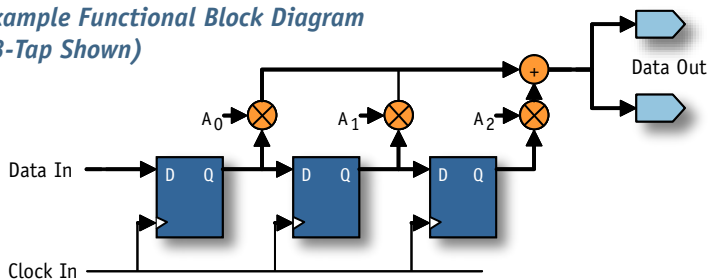
The wave shape can be adjusted in the user interface by either directly entering tap weights, or through an amplitude weighted time domain bit map showing the step response. In addition to these two views, a frequency domain Bode plot is calculated and displayed to show the effect being implemented. This is particularly helpful when counteracting the effects of circuit board ISI with a measured frequency response.

Adjustable Output

Output amplitude is user adjustable in amplitude and offset, and is offered differentially.

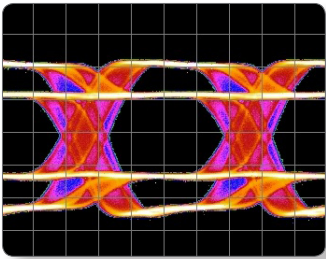


Example Functional Block Diagram (3-Tap Shown)



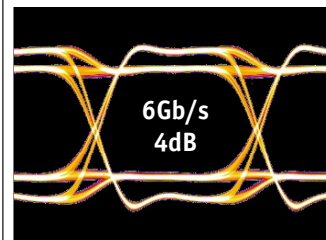
Intuitive user interface gives multiple views of the output waveform

Emerging Standards Requirements



De-emphasized signal with sinusoidal jitter from a BERTScope S.

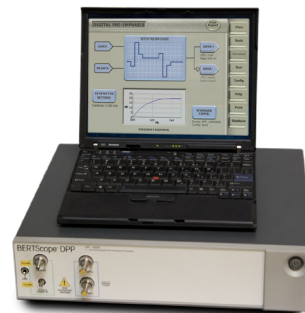
Standard	Required number of taps	Notes
802.3ap, 10GBASE-KR 10GbE Backplane	3	
PCI Express 2.5 GT/s Receiver	2	0.7 dB for receiver testing
PCI Express 5 GT/s Transmitter	2	Selectable 3.5 dB and 6.0 dB levels on transmitters
PCI Express 8 GT/s	3	Proposed for transmitter
SAS 6 Gb/s	2	2 dB for reference transmitter 2-4 dB for device transmitters.
DisplayPort Transmitter 1.62 Gb/s and 3.2 Gb/s	2	Selectable 3.5 dB, 6 dB or 9.5 dB on transmitters.
USB 3.0 Transmitter 5 GT/s	2	3.5 dB nominal +/- 0.5 dB on transmitters.



“I now have the DPP working with the BERTScope, and it's very nice. The interface is intuitive, creative, and useful. I like the real time frequency response plot, and the independently controllable taps with different units to choose from. The 3 taps, their tuning range, and signal fidelity is more than adequate for us. Great job with this box.”

Analog R&D Engineer
High Speed Serial IO,
A leading semiconductor company

The BERTScope DPP can operate as a standalone instrument controlled by a PC, or with a BERTScope for complete software integration. It can be fully automated, and with its compact size, the DPP will easily fit into a manufacturing environment.



“This is a very useful product for anyone designing high speed serial buses.”

Key contributor to several serial data standards

Specifications

	Specification	Notes
Data rate range	1–12.5 Gb/s	
Inputs		
Clock	Single-ended	SMA
Sensitivity	150 mV	
Termination	50 Ω, AC coupled	
Maximum Jitter Transfer	1:1	Input Clock to Output Data
Data	Single-ended	SMA
Sensitivity	150 mV	PN31 pattern
Termination	50 Ω, AC coupled	
Outputs		
Data	Differential	SMA
Amplitude	Up to 1.8 V (typ.)	Differential, Adjustable
Diff. Skew	< 2 psec (typ.)	
DC Offset	Adjustable to +/- 500 mV	
Coupling	AC	AC-coupled data with DC-coupled output offset
Function	3 or 4-tap, clocked FIR	
Random Jitter	< 350 fs RMS typ.	Additive, 1010 pattern
Tap Range	-100 to +100 (including 0) in 1% steps	
Tap Resolution	1% or 0.1 dB, any tap	
Transition Time	< 40 psec typ.	All taps, 1010 pattern
General		
Control Interface	USB 2.0	
Dimensions (W x H x D)	39.4 x 9.5 x 33.6 cm (15.5 x 3.75 x 13.25 in)	
Weight	9 lbs (4 kg)	
Power Consumption	< 150 W	
Voltage	100–240 VAC, 45-63 Hz	Auto-range, IEC power plug



Ordering Information

DPP12500A 1–12.5 Gb/s 3-Tap Digital Pre-Emphasis Processor

DPP12500A-4T 1–12.5 Gb/s 4-Tap Digital Pre-Emphasis Processor

The DPP can be operated standalone with a PC (not included) or with a suitable BERTScope model.

What's in the Box:

DPP12500A
Power cable (US)
USB Cable
2 SMA input cables
CD-ROM with software

Our Promise to You

We have been supplying the most demanding customers for the past 15 years. We have built up long and trusting relationships with engineers working in error prone environments from aerospace defense to storage and satellite, proud to play a part in their success. We are committed to providing you with the best tools available. We are so sure that you will be delighted with the BERTScope family that we offer free technical support, a standard 1 year warranty extendable to 3 years, 1 day of start-up assistance upon system delivery, application expertise and support, responsive calibration and repair, and a library of web-based technical information. All of our instruments are upgradeable—as we advance our capabilities, we won't leave you stranded.

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Specifications subject to change. U.S. and International patents granted and pending.

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