



Verigy V93000 Pin Scale HX high- speed extension card

Product Overview



High-performance device characterization test solution for high-speed devices and interfaces with data rates up to 12.8 Gbps

Industry Challenges

New computation and communication devices use high-speed buses and interfaces operating at 5 Gbps and beyond. Data rates on some serial links are already in the range of 10 to 12 Gbps. Greater device integration together with developments in nanometer technologies result in new types of fabrication defects and parametric failures. Time to profitable yield is critical. Therefore, new designs must be thoroughly characterized and margins determined to ensure a device is production-ready. At the same time, the ever-present need for reduced cost of test is causing a strong migration towards structural and BIST/DFT-enabled tests in volume production.

Features and Benefits

Feature	Benefit
At-speed drive and receive ATE channels	Functional and parametric at-speed core and I/O testing
12.8 Gbps data rate	Ultra high-speed solution with broad application span is a secure investment for current and next generation of high-speed links
On-board retiming	Highest accuracy and lowest jitter to characterize devices and determine device margins Rx/Tx jitter separation
Pattern and loopback capabilities	Supports multiple and emerging test methodologies for both device characterization and production testing
Supports forwarded and embedded clock schemes	Expands support not just for high-speed serial interfaces but also for source synchronous interfaces
Flexible licensing system	Scales in functionality and speed with an easy upgrade path. Buy only what you need, then scale as needed

Product Summary

First high-performance test solution for high-speed devices and interfaces

Verigy further extends the performance of its scalable V93000 series with the Pin Scale HX, a new 12.8 Gbps ATE channel card that combines the functionality of at-speed ATE channels with high-integrity loopback.

Verigy's Pin Scale HX provides the uncompromised signal integrity required for thorough at-speed design characterization and test of the new generation of device interfaces.

The Pin Scale HX protects investment by providing headroom up to 12.8 Gbps. The combination of a full function digital channel with high-integrity loopback enables users to scale their test methodology and support fast transitions from design characterization to volume production.

Typical applications for the Pin Scale HX include PCI Express®, HyperTransport™, SERDES interfaces, emerging high-speed memory interfaces and ultra-speed Datacom interfaces in both device characterization and production environments.

The Pin Scale HX utilizes data channels from Pin Scale 3600 cards to generate the high data rates up to 12.8 Gbps. A flexible licensing system enables users to select data rate and channel functionality to meet their current needs with a seamless upgrade path for future devices. With adjustable and precise jitter injection, DC access for parametric tests and at-speed level control, the Pin Scale HX provides unmatched performance insights that enable design validation and characterization with uncompromised quality. In addition, the Pin Scale HX supports the testing of devices that use embedded and forwarded clock schemes.

Scalable platform and per-pin architecture offer extensive flexibility

The Pin Scale HX high-speed extension card extends the performance range of the Verigy V93000 SOC Series for today’s high-speed devices and interfaces. The unique scalable platform architecture of the V93000 Series protects investment in the test system while keeping pace with emerging test performance needs. Without changing test platforms, manufacturers can quickly and efficiently adapt to technology changes, leveraging test programs, a consistent software platform, the same

Key Specifications

Data rate	800 Mbps to 12.8 Gbps by multiplexing Pin Scale 3600 channels
Per-pin pair EPA	Differential signal edge placing accuracy, $\pm 15\text{ ps}$ typical
Driver	
True differential driver	
Swing	50 mV to 600 mV (SE into 50 Ohms)
Swing resolution	1 mV
Level range	-1 to 3 V
Rise time	<math><40\text{ps}</math> (20% to 80%)
Receiver	
Level modes	Differential, single-ended or common mode
Input voltage range	-1 to 3V
Termination	50 Ohm to V_{term} or 100 Ohm differential
Intrinsic rise time	<math><40\text{ps}</math> (20% to 80%)
Jitter injection	to 360 ps _{pp}
Jitter injection resolution	1ps
Jitter modulation range	10 kHz – 100 MHz with on-board/per-channel sine wave generator 10 kHz – 300 MHz using external input (e.g., AWG)
Frequency resolution of on-board sine-wave generator	1 kHz, sinusoidal
Common mode signal injection level into open	400 mV _{3pp}
Characteristic common mode detection frequency range (-3dB)	DC to 100 MHz
Common mode signal detection level range	-1 to 3 V

Key Capabilities

At-speed drive/receive ATE channels for data rates up to 12.8 Gbps

High-integrity loopback for device test in BIST and loopback mode

Jitter and common mode injection capabilities

Full jitter measurements

On-board retiming for maximum timing accuracy and Rx/Tx jitter separation

DC, scan and low-speed vector access

Built-in forwarded and embedded clock support

Equalization capabilities to compensate loadboard losses

Key Requirements

Minimum requirements:

Verigy V93000: Operating System Release 5.3 Linux

Pin Scale 3600 channels to drive channels in pattern mode

hardware modules, DUT board reuse and use of the same docking hardware.

The unique tester-per-pin architecture applies full tester resources to each pin, resulting in extraordinary tester utilization and lowering cost-of-test.

Related Information

Pin Scale 3600

Pin Scale 800

BIST Assist 6.4

InstaPin per-pin licensing

Additional Information

For more information about the Verigy V93000 Pin Scale HX high-speed extension card, please visit:

www.verigy.com

Contact Information

For more information about the Verigy V93000 SOC Series, please contact your local Verigy sales representative.

www.verigy.com/contactus

This information is subject to change without notice.

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