Industry Challenges

Consumer demand for more data intensive applications such as 3D gaming and video editing is driving the need for faster processing and higher speed interfaces in next-generation SOC devices. These SOCs are designed using deep sub-micron process technologies, such as 90nm and below, that generate a new class of defects, requiring faster and more accurate, at-speed functional testing.

The uncertainty in the rate of integration and the convergence of consumer devices requires that test equipment have the scalability and capability to test next-generation SOCs with higher speeds and more interfaces. The uncertainty of what interface will be integrated next is best mitigated through the flexibility of per-pin scalability.

At the same time, consumer prices are driven down, which makes it imperative to lower the cost of at-speed test while addressing future uncertainties.

Product Summary

Per-Pin Scalability up to 3.6 Gbps

The evolution of devices to nanometer technologies drives up the need for affordable high speed testing. Agilent's Pin Scale 3600 Digital Card provides the speed and necessary accuracy at an unprecedented price. Based on the scalable architecture of Agilent's 93000 SOC Series, the Pin Scale 3600 Digital Card allows each test pin to be flexibly and instantaneously configured to adapt to changing test needs. In addition, each pin offers both single-ended and differential I/O test capabilities suitable for testing a wide range of interfaces. Such flexibility means that the ATE can be matched to the device pin-by-pin, which results in lowest cost. As device requirements change, additional high-speed pins can be added affordably.

High speed, up to 3.6 Gbps, for next-generation SOC devices

The Pin Scale 3600 provides the at-speed functional performance demanded by high-speed system-on-chip (SOC) devices and interfaces such as FSB1300/1600, DDR2, DDR3, G-DDR, XDR, HyperTransport, PCI Express, S-ATA and more.
Accuracy for better results and improved yield

Hand-in-hand with the data rate, the testing of high-speed interfaces must also be done accurately, for better results and improved yield. The Pin Scale 3600 meets this challenge by providing a differential pin edge placement accuracy (EPA) of less than +/- 30 ps.

Per-pin scalability from 800 Mbps to 3.6 Gbps

Each pin can be scaled from 800 Mbps to 3.6 Gbps, allowing the test system to be configured to match device requirements, pin-by-pin, for lowest cost. In addition to the scalability of data rate and memory depth, each pin offers both single-ended and differential I/O test capabilities that make it possible to test a wide range of interfaces including DDR, G-DDR, PCI Express, S-ATA, HyperTransport and Front Side Bus.

Compatibility protects investments in equipment, people and training

Agilent's Pin Scale 3600 Digital Card's pin electronics actually consist of two sets of drivers and receivers. One 3.6 Gbps-capable high-speed driver and receiver set, and one set built for compatibility with the Agilent 93000 P-models. This provides bi-directional compatibility, protecting investments in equipment, people and training.

Unexpected affordability for an at-speed testing solution

Additional high-speed pins can be added for as low as $2,000 per pin. The Agilent 93000, equipped with the new Pin Scale 3600 Digital Card, shrinks the cost of testing high-speed system-on-chip (SOC) devices found in computer, digital consumer, communications and networking products, breaking the cost barrier traditionally seen for high pin count, high-speed test systems.
**Additional Detail**

Two full pin electronic drivers for differential signals

Because of our flexible approach for testing differential signals, we are not constrained by the limitations of the true differential driver approach, the only option for some other solutions. In contrast, we provide two full pin electronic drivers, which allow you to do particular modifications of the differential signal as required by certain protocols and bus standards (e.g. out-of-band signaling). Under such circumstances, initialization or training sequences require individual adjustment of the two legs (positive and negative) of the differential signal, which is not possible with the true differential driver.

**Unified memory approach**

The unified memory approach pools memory for both sequencer instructions and vectors. The entire amount of purchased memory is available for both test vectors and sequencer instructions, which provides more flexibility than architectures based upon two unshared memory areas. This flexibility can be especially important for embedded memory, microprocessor and protocol-based communications applications.

**Test Processor-Per-Pin architecture**

The Pin Scale 3600 Digital Card features a Test Processor Per-Pin architecture, which localizes all test processing instead of using centralized resources. This results in minimal measurement overhead and higher throughput.

**Ordering Information**

E8010A – Pin Scale 3600 Digital Card

E8010P – Pogo assembly for E8010A

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### Key Specifications

<table>
<thead>
<tr>
<th></th>
<th>Standard mode</th>
<th>Fast mode</th>
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<tr>
<td>max. I/O data rate</td>
<td>1000Mbit/s</td>
<td>max. I/O data rate: 3200Mbit/s</td>
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<tr>
<td></td>
<td>(characteristic)</td>
<td>(characteristic)</td>
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<tr>
<td>max. CLK rate</td>
<td>625MHz</td>
<td>max. CLK rate: 1.60GHz</td>
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<tr>
<td>OTA</td>
<td>+/- 200ps</td>
<td>max. CLK rate: 1.80GHz (characteristic)</td>
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<tr>
<td>EPA</td>
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<td>pin EPA: &lt; +/- 30ps</td>
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<tr>
<td>edge placement resolution</td>
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</tbody>
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**Additional Information**

For more information about the Agilent 93000 SOC Series, please visit:

[www.agilent.com/see/soc](http://www.agilent.com/see/soc)

**Contact Information**

For more information about the Agilent 93000 Pin Scale 3600 Digital Card, please contact your local Agilent sales representative.

[www.agilent.com/see/contactus](http://www.agilent.com/see/contactus)

This information is subject to change without notice.

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