Diamond$_X$ Test System

Flexible, Cost Optimized Test Solutions

Automotive

Mobility

IoT/IoV & Optoelectronics

Computing & Network

Industrial & Medical

Consumer

Productivity

- Universal instrument slot architecture supports 20-slot or 40-slot configurations
- Concurrent test support enabling the testing of multiple digital ports, SerDes, analog and RF in parallel
- Air cooling, no heat exchange or plumbing
- Energy efficient, low power consumption

Key Features

- Scalable, high efficiency architecture to fit a range of multisite test strategies
- Extremely high-speed data bus based on PCI-Express industry standard
- Wide application coverage Precision Analog, DC, RF and SerDes IP cores' testing
- Over 7,500 pins configured with a variety of instruments

- **Next-gen test system for wide range of applications**
- **Scalable high-throughput architecture**
- **Flexible configurations and solutions**
- **Small form factor**
- **Air cooled architecture and instruments**
- **Compact low power technology**

Diamond$_X$ Test System

Cohu

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Instrumentation

Automotive

AT1x: Automotive test composite pin
- Composite pin instrument allowing for testing CAN and LIN, that conforms to SEA standards required for these automotive products
- Reduced loadboard complexity through CAN and LIN loads and LIN driver, along with integrated switch paths for multiple resources to DUT pin connections
- Transient detect capability to capture perturbations at the device in program development or production test

ATMPx: Analog time measurement processor
- Flexible timing measurements through per-pin programmable comparator levesl and programmable hysteresis
- Reduced loadboard complexity using the SmartMux for high voltage timing measurements

VI1x: Precision voltage/current source measurement with advanced features for automotive and industrial devices
- Advanced features such as a modulation generator and digitizer per channel enable the VI1x to be used for a wide variety of devices measurements
- A combination of internal and external triggers can be used for gating and sampling for maximum testing flexibility
- A time measurement unit measures rise and fall times, pulse, period, frequency and time difference, making the VI1x a truly versatible instrument

DC and Power

DPS16: 16-channel device power supply
- Continuous voltage source
- Voltage and current measurement

DPS1x: High-performance device power supply
- Multisite testing of multi-core application processors and other high current, low voltage devices
- Drop-in replacement for DPS16 with enhanced capabilities

FPVIx: High-voltage, high-current floating programmable power supply
- Fast throughput with high-power pulsed mode operation
- Transient detect capability to capture perturbations at the device in program development or production test
- Reduced loadboard complexity using the SmartMux for high-voltage and current signal routing
- Expert mode to maximize energy efficiency of the instrument

HPVI: High-density voltage current for massive multisite test
- Highest V/I pin density in the industry
- Voltage/current supply (VIS) mode
- Precision analog source (PAS) mode
- Flexible triggering options
- External input matrix

PD2x: Test solution for ultra-high definition display driver ICs
- Integrated display drivers for mobile and tablet applications, including touch and display driver integration (TDDI)
- Large panel television and monitor applications, including ultra-high definition and 240 Hz refresh rate
- Extended range selection
- 128k capture memory per channel
- Industrial and automotive display drivers

PMVIx: Voltage/current source for mobile, power management, SoC, automotive and MCU ICs
- Meets the test challenges of integrated mobile power management devices with dozens of DC-DC and linear regulators ranging from under 100 mA to several amps

VI16 and VI1x: Precision voltage/current and measurement with advanced features
- V/I source mode
- AWG and digitizer functions
- Time measurements
- Differential voltage measurement
- Timers, triggers and gates
- Alarms

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Digital

DPIN-96: High-value solution for testing digital
- Flexible timing
- Reconfigurable pattern memory
- Deep capture memory
- High-precision PMU
- Built-in time measurement
- Super voltage
- Comprehensive software tools

GX1x: General purpose digital
- Flexible pattern memory allocations
- Multiple pattern generation
- Transmit and receive of digitized waveforms
- Pattern synchronization and control of DC and AC analog test instruments

MP1x: LVDS port and DDR memory port test
- Matching the interface structure and requirements of a DDR memory controller for simplified DUT boards
- Supporting built-in memory protocol support
- Same cycle match capability to support for data latency of up to 8 cycles

HSI1x/HSI2x: SerDes/LVDS/MIPI
- Physical layer testing with built in PRBS BERT TX/RX
- BIST/DFT testing using high bandwidth drive/compare memory
- Protocol level and mixed-signal testing using deep send pattern memory

HSIO 8 lane SerDes for high-speed serial interfaces
- 8 Tx, 8 Rx
- 6.4 Gb Data Rate
- 128M Vector Mem
- Jitter Injection
- Eye Mask, PRBS

Display Driver/Flat Panel

PD1x/PD2x: Test solution for ultra-high definition display driver ICs
- Integrated display drivers for mobile and tablet applications, including touch and display driver integration (TDDI)
- Large panel television and monitor applications, including ultra-high definition and 240 Hz refresh rate
- Extended range selection
- 128k capture memory per channel
- Industrial and automotive display drivers

Mixed Signal and DSP

Multi-wave: Highly integrated mixed-signal instrument for multisite and concurrent test
- Wide bandwidth analog source and capture
- Flexible triggering
- High-precision PMU
- Protected I/O channels
- Simpler test boards
- Mixed-signal software support

DCTMx: Precision data converter test module
- Precision linearity to 1 ppm
- Single-ended, differential, and pseudo-differential connection
- Testing ADCs and DACs, and class-D amplifiers with a single instrument
- 4:1 SmartMux

RF

DragonRF
- Configurable with 16 or 32 universal RF ports
- 6 GHz RF modulated source and 8 GHz RF measure
- Up to 8 receiver paths each with an analog bandwidth exceeding 200 MHz for ocal site parallel RF measurements
- Frequency: 10 MHz to 8 GHz
- Resolution/Range: -130 to +16 dBM
- Low Jitter Clock Option: Frequency: 1 MHz to 6 GHz. Resolution/Range +10 to -20 dBm
- SWG-HSG: Resolution/Range: 16 Bits. Max Sample Rate: 250 Ms/s
- Hummingbird digitizer: Resolution/Range: 16 Bits +DRE. Max Sample Rate: 400 Ms/s

Raven
- Ku Band RF test solution
- Configurable with 8 universial RF ports per brick, up to 2 bricks per system
- 14.75 Ghz RF modulable source and 14.75 GHz RF measure
- Up to 4 receiver paths each with an analog bandwidth exceeding 1 GHz for quad site parallel RF measurements

Nighthawk CT
- For complete range of RF connectivity applicables; WLAN, Bluetooth, Zigbee, GPS, DVB, FM and more
- Ultra-compact RF instrument
- Benchtop instrument design and calibration strategy enables portability test systems typically <30 min

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Software

Test Software Environment
- C++, Unison

Work Station
- High-performance Multi MPU, Multicore Linux based PC

System DUT Utility Resources

SDU
- Loadboard power supplies
- User control bits (128)
- Reference clock
- Serial and parallel control buses

Specifications

Instrument Slots
- 20 instruments slots in a single test head
- Field upgradable to 40 instrument slots in a dual test head

Digital Pin Count
- 3,648 single test head
- 7,296 dual test head

Multisite Test Sites
- Up to 1024

Thermal Management
- Air cooled

Prober and Handler Interfaces
- GPIB, TTL, RS-232, Ethernet

Test Head Dimensions
- 12″ W x 26.5″ D x 29.5″ H without Dragon RF
- 17″ W x 26.5″ D x 29.5″ H with Dragon RF

Test Head Weight
- 200 lbs (90 kg) without DragonRF
- 250 lbs (150 kg) with DragonRF

Mainframe System Dimensions
- 20.5″ W x 32″ D x 20.5″ H without DragonRF
- 20.5″ W x 32″ D x 38″ H with DragonRF

Mainframe Weight
- 150 lbs (68 kg) without DragonRF
- 230 lbs (104 kg) with DragonRF

Facilities Requirements

- Electrical: 290-240 VAC, 50 Hz/60 Hz 3-Phase 30 A
- Ethernet: required
- Other: no compressed air or chilled water required

Specifications subject to change without notice.
For detailed performance specifications, please contact Cohu.

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