

# ICS-1620

## 16-Channel. 2.5 MHz 16-Bit DAC PCI Express x4 Slot Card

Designed for demanding acoustic and ultrasound applications, the ICS-1620 offers an unprecedented capability for applications in sonar, vibration analysis, and test and measurement. High channel density and excellent performance are accomplished in the PCI Express short form factor.

By incorporating a high speed, high performance 16-bit DAC with a programmable interpolator, the ICS-1620 allows analog signals generated at input sample rates of up to 2.5 MSPS with greatly reduced signal conditioning requirements. This allows the ICS-1620 to achieve its high performance.

Flexible clocking schemes allow for programmability over the entire available sampling range with a resolution of 1 Hz. The clocks can be locked to a very stable on-board 10 MHz TCXO, or to an externally supplied reference clock (e.g. from a GPS receiver). The external clock can also be provided at the desired sampling rate as the oversampling clock.

The ICS-1620 also provides multiple board synchronization for applications requiring more than 16 channels, or that require synchronization between receive and transmit elements of the system. The ICS-1640

provides an ADC product complementary to ICS-1620; the two products are designed to work together in systems requiring both receive and transmit elements.

The x4 PCI Express host interface allows the ICS-1620 to be utilized in the latest generation of high end servers for control and data processing using the capabilities of multi-core CPUs. The x4 interface provides the necessary data bandwidth to support the full capabilities of the module. The scatter/gather mode of DMA implemented on the ICS-1620 allows for traditional interrupt driven data transfer architectures, or more modern demand mode driven data transfer.

The ICS-1620 also supplies 16 MBytes of high speed on board storage in a swing buffer configuration. The swing buffer is programmable in depth allowing an application to fine tune system latencies to achieve optimal performance.

Another feature of the swing buffer is that it supports both continuous and one-shot modes of operation. The one-shot mode of operation allows for a fixed number of samples to be converted following application of the trigger signal.

### FEATURES:

- 16-Ch, 2.5 MHz Interpolated 16-bit DAC
- Short form factor
- Fully differential outputs
- 85 dB spurious free dynamic range
- PCIe x4 interface
- Internal/external clock
- Internal clock programmable with resolution of 1 Hz
- 10 MHz on-board TCXO reference
- 16 MB on-board storage
- Microsoft® Windows® and Linux® Software Development Kits

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## Specifications

### Analog Output

- Sixteen differential outputs
- 44-pin high density D connector for analog outputs
- <50 ohm output impedance
- Sample resolution 16-bits
- Full scale output voltage 20 Vpp differential
- Output signal bandwidth 0.4 x Output Data Rate
- Oversample clock ratios from 8 to 256
- Oversample clock maximum 50 MHz
- Oversample clock minimum 0.5 MHz
- Maximum input data word rate 2.5 MHz
- Minimum input data word rate 1.95 kHz
- Internal sample clock oscillator programmable in steps of 1 Hz
- On board TCXO clock reference 10 MHz ±4.5 ppm
- Sampling on rising edge of internal or external clock
- External trigger LVTTTL/LVCMOS, software selectable rising/falling edge
- External clock LVTTTL/LVCMOS

### General

- Short Form Factor PCIe x4

### Environmental

- 0° to +55°C Operating
- -40° to +85°C Storage
- Humidity <95% non-condensing

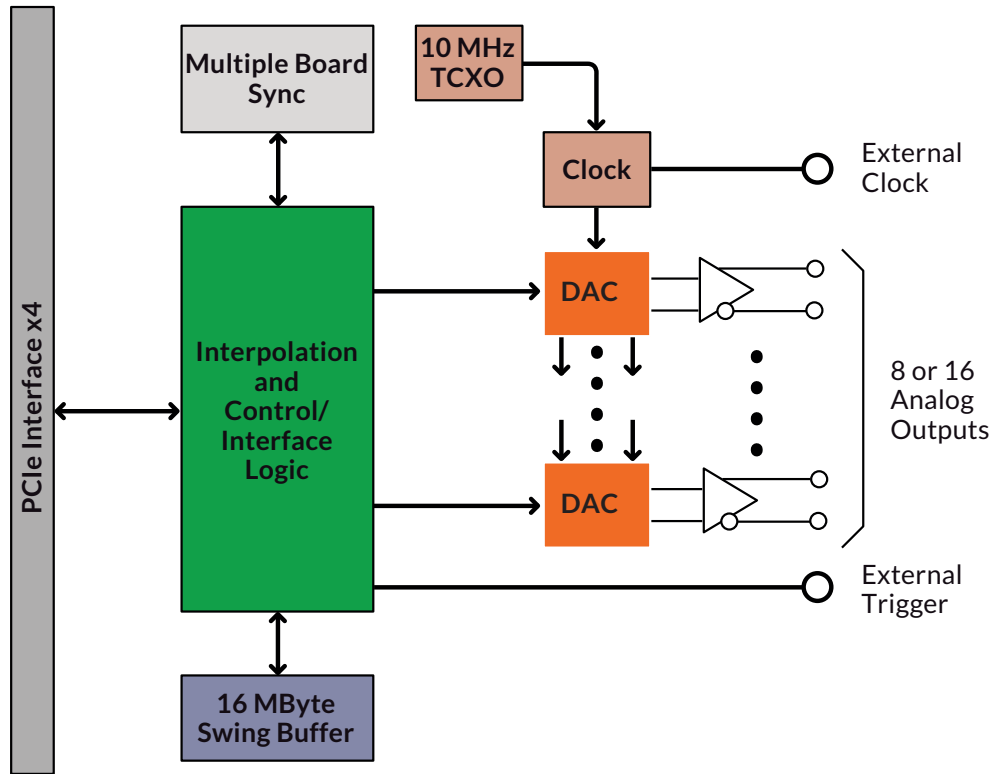
### Power

- 28 W

### Software

- Linux and Microsoft Windows Software Development Kits
- Software Development Kit (SDK) includes API level source code, and application examples.

## Block diagram



## Ordering information

ICS-1620A-000	16-channel 2.5 MHz DAC PCIe x4 module
ICS-1620A-001	8-channel 2.5 MHz DAC PCIe x4 module
CN-P44-M	Analog mating connector kit for ICS-1620 (one required per board)
ICS-1620-SDK-WIN	Software development kit for Microsoft Windows XP and Vista operating system
ICS-1620-SDK-LX	Software development kit for Linux operating system

Connector and cable options are available. Contact your sales representative for details.

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