



ICE-D2AWG-m3

Digital to Analog Convertor (DAC) 5 GS/sec
Output Module (Direct Path Output 1-2500MHz)



Overview

The Digital to Analog Waveform Generator module, ICE-D2AWG-m3, is the newest module designed for use with the new ICEPIC8 series DSP card. High fidelity, 400MHz bandwidth with output center frequencies from 1 MHz to 2500 MHz are available. Complex signal-source data can be streamed to the module for output. Streaming can be from memory of the system the module is installed in or from a high speed ICE-RAID capable of streaming from disk at the fast speeds required to feed wideband data to the ICE-D2AWG-m3. The module is a single-site module. When two ICE-D2AWG-m3 modules are installed on an ICEPIC8, dual 400MHz output on center frequencies up to 2500 MHz can be transmitted.

Features

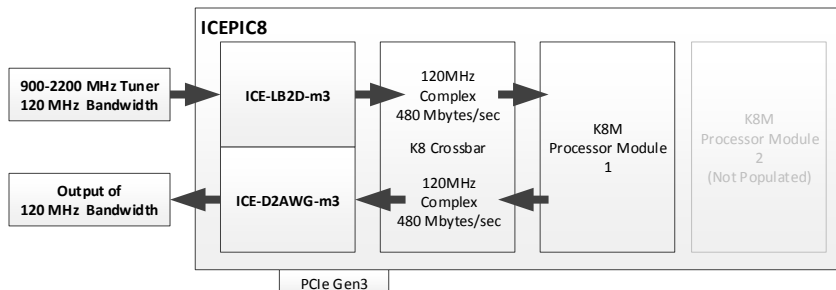
- Arbitrary waveform generator
- 5 Gsamp/sec DAC
- 14-Bit DAC resolution
- Output Frequency 1-2500MHz
- 36-bit Digital NCO used for Output Center Frequency
- AC Coupled Output
- Available 34 dB gain range
- -20dBm output power nominal
- Full Scale Max +10 (band dependent)
- External 1PPS input for precision startup/triggering
- External 10MHz reference
- Single site module for use with ICE-PIC8 Series cards

Applications

- Playback of recorded digital tuner data at IF/RF
- Perfect companion to the new L-Band module - ICE-LB2D-m3
- Frequency tone synthesizer: 1-2500MHz
- Communications AWG Transmission
- Instrumentation

Suggested I/O Solution Application

- Use the L-band input module (ICE-LB2D-m3) for capturing 120MHz of bandwidth
- Use the DAC output module (ICE-D2AWG-m3) for output of 120MHz bandwidth
- Use ICE-RAID for recording of 120MHz bandwidth scenarios
- Playback from ICE-RAID the exact same recorded 120MHz scenario
- Record multiple 120 MHz scenarios and digitally add them to create complex playback scenarios up to 400MHz wide



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ICE Enterprises

Innovative Computer
Engineering

ICE-D2AWG-m3

- ▶ 5 GigaSample DAC
- ▶ 400MHz Bandwidth
- ▶ 1-2500 MHz Direct Path IF/RF

We can integrate your ICE Hardware
DSP devices into a portable solution...

ICE-Briefcase



ICE-POD8



ICE-PAC



... or a rack mounted solution

ICE-BLOCK



ICE-COOLer



A recording solution is also available

ICE-RAID (2U-48TB/3U-96TB/4U-140TB available)



Analog/SONET/Packet/Network Recording

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Cards / Devices / Appliances / Packet Engines	ICEPIC PCI Express Card ICEPIC1 PCI 32bit, ICEPIC2 PCI 32bit, ICEPIC3 PCI 32bit, ICEPIC4 PCI 64bit, ICEPIC5 PCI 64bit, ICEPIC6 PCIe Gen1, ICEPIC7 PCIe Gen2, ICEPIC8 PCIe Gen3 6GB/sec
	ICEPOD Ultra Portable High Speed Recorder (HSR) "Shoe Box Size" ICEPOD6, ICEPOD6.5, ICEPOD8 M8-HSR 2600MB/sec Removable Storage
	ICEPAC Ultra Portable Device "Pocket Size" / Quad 10 GbE Network Output ICEPAC 400MB/sec Dual I/O Site
	ICE BLOCK (Network Attached ICE-Cards/Modules) Dual 40 GbE or Quad 10 GbE Network-Attached Appliance (8TB Record/Playback option available) Network Attached 1U Appliance Hosting Dual ICEPIC Cards
	ICE COOLer (PCIe Attached over Fiber ICE-Cards/Modules) Advanced Connection Over Optically Linked er PCIe Remote Attached 1U Chassis Hosting Dual ICEPIC Cards
	ICE GigEXD / TGigEXD 1 Gigabit and 10 Gigabit Data Conversion device (Stand Alone and up to 4-Channel 1U Chassis) GigEXD 1Gbit, Works w/ ICE-AA2D TenGigEXD 10Gbit with 4 Tuners, Works w/ D2AWG2
ICE-DPI8 (Deep Packet Inspection) PCI Express Card / Dual 40G or Quad 10G - Intel® XL710 Interface Heavy Load Packet Processing/Inspection	

Cards/Appliances

Analog Digitizers	1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 Analog to Digital A2D 12 Bit 250 MS/sec ICE-A2Dr9, 500 MS/sec ICE-A2Dr10, 250 MS/sec ICE-A2Dr13, Dual 1.6 GS/sec 750 MHz BW ICE-A2Dm18
	Analog to Digital A2D 14 Bit 105 MS/sec ICE-A2Dr7, 125 MS/sec ICE-A2Dr8, 250 MS/sec ICE-A2Dm14, Currently in Prototype, Dual 3 GS/sec 1500 MHz BW ICE-A2Dm20
	L-Band 900-2200 MHz Tuner 900-2200 MHz 85 MHz BW ICE-LB2Dr2, 900-2200 MHz 120 MHz BW ICE-LB2Dr3
	Digital to Analog DAC 160 MS/sec ICE-D2Ar2, 200 MS/sec ICE-D2Ar9, ICE-D2AWG 110 MHz BW 0-500MHz IF, ICE-D2RF 50 MHz BW 70-4000MHz RF, ICE-D2AWG-m3 5GSPS DAC / 400+ MHz BW 0-2500 MHz CF Direct RF Up to 7000 MHz Mixed
Processors	Processor Modules Xilinx and Altera Gate Array "Sandbox" DTDm, DTDmX, V5M, V6M Vertex, K8M Xilinx UltraScale, A8M Altera/Intel® Arria 10
	SONET Optical Modules SONETr1 OC3, SONETr2 OC12, SONETr4 OC48, SONETr5 Dual OC48, SONETr6 Dual OC192, SONETr7 Dual OC192 Enhanced
Packet Engines	Raw Packet I/O Modules [Dual 10G] UDP 10Gr2, UDP 10Gr3
	Packet Processing Modules (For ICE-DPI8 Card) [Quad 10G / Dual 40 GbE] Deep Packet Inspection Processor

Modules - Analog / Digital / Optical / Network / Packet Engine

Analog/Optical/Packet Rack and Portable Recorders	1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 ICE Recorder Technology Speed Progression (Megabytes/sec) 20 MB/S 80 MB/S 320 MB/S 1250 MB/S 1400 MB/S 2800+ MB/S 4000+ MB/S
	Custom Analog Recorders Many Models-Call for a Solution ICECAP20, ICECAP80, ICECAP320, ICECAP1250, ICECAP WB1400, ICECAP 1600 Quad 400MB/s
	Rack Mount Optical Recorders Tandem OC192 SONETr OC192/10G Dual 1400MB/s ICEPIC8 SONETr7
	Portable Small 12 Volt DC Analog Recorders ICEPOD8 HSR Dual 1400 MB/S (2800 MB/S)
	Portable Small 12 Volt DC Optical Recorders ICEPOD8 HSR Tandem SONETr OC192 10G ICE-SONETr7
	Portable ICE Briefcase Recorders "Server-in-a-Briefcase" Original QT360 Briefcase 2003, ICE Briefcase XEON Series 48GB RAM Hosting Dual ICEPIC6 Cards, ICE Briefcase Intel® XEON V4 Series 128GB RAM Hosting Dual ICEPIC8 Cards
	Custom Packet Recorders (4 Channel / 400Megabyte/sec/channel Packet Recorder) Example Model listed here - Many Models-Call for a Solution ICE-CSC-M2012 Quad 400MB/s

Recorders Rackmount and Portable Technology