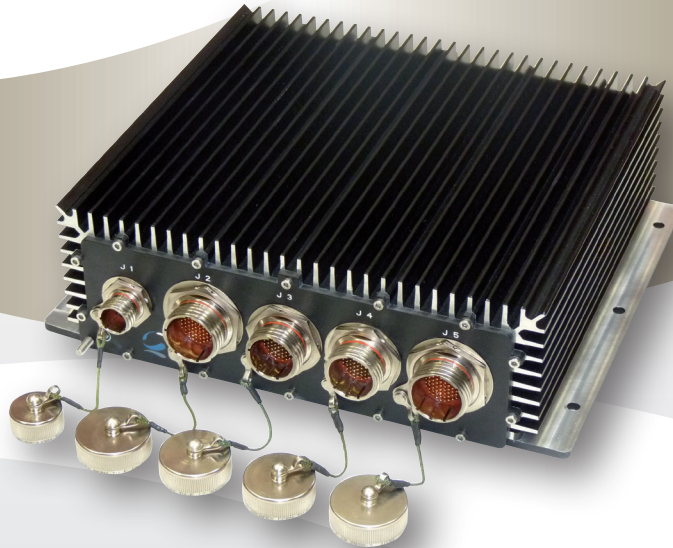


ONYX HPEC+GPGPU+SWaP-C

Pre-Qualified Multi-Mission Rugged Computer to cut time, budget and design risk



► Multi-Core i7 Haswell with up to 768 GFLOPS Engine, ready to application platform: few NRE for time to market with optimized TCO

The SWaP-C profile of ONYX family allows the unit to fit easily into available nooks on any platform making it ideal for space constrained applications such as ground vehicles, manned & unmanned aircrafts, helicopters, UVS or any other robots in harsh environment requiring rock-solid reliability.

Pre-Qualified ONYX systems slash design risk, lower costs and speed deployment thanks to risk-lowering of proven technology, stress tests passed for maximum loads, saving up to 60 k\$ and 2 months campaign, reducing smaller parts inventory to simplify obsolescence management.

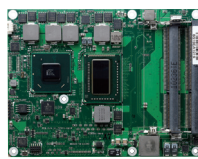
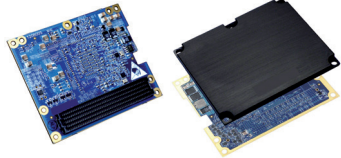
ONYX is based on modular mezzanines concept that offers customer a large flexibility and Long Life Management with revision control. It employs leading edge dual or quad-core Intel® Core™ i7 3rd & 4th Gen processing capabilities to meet a wide variety of mission requirements. ONYX is ideal for high performance harsh environment/space constrained applications, and features flexible I/O which can be tailored to customer requirements, with just a few NRE allowing customer to accelerate Time-to-Market. Particularly attention has been made on embedded image processing thanks to GPGPU features that specifically targets high-end video analog, HD-SDI digital and broadcast SMPTE inputs and outputs with overlay, augmented reality, H.264 AVC compression and EAS-NI encryption. Long life AMD E6760 and new E8860 GPGPU offer up to 768 GFLOPS parallel computing engine. Internal I/O routing from the backplane to the front panel MIL-DTL-38999 connectors is by means of solid-state transition module. It provides cable-free higher reliability and improved signal integrity than harnessing at lower price.

- Multi-Core INTEL i7 3rd and 4th Gen, evolutionary
- AMD E8860 or E6760, up to 768 GFLOPS intensive computing for 80W only
- Up to 2x HD-SDI (SMPTE 292M) Digital Video inputs
- Up to 4x PAL/NTSC Analog Video inputs
- Up to 3x independent DVI-D or HD-SDI (1920 x 1080p at 30fps) outputs
- STANAG, VGA and other legacy display on demand
- H.264/AVC Encoding and streaming capability
- Embedded EGNOS-capable GPS option

- 512GB SSD removable option
- Cable-free, Fan less, MIL-DTL-38999 connectors
- Real cold start -40°C/+71°C Operating Temp
- Pre-Qualified MIL-STD-810/461/1275/DO-160
- IP-67 Ingress
- Power-on BIT option
- Long Life Management with revision control
- High flexibility to Modified COTS
- ITAR free

ONYX HPEC+GPGPU+SWaP-C

System specifications

Processor	Core i7 3 rd and 4 th Gen on COM Express 2.1 Type 6 module - Core i5-4400E @ 2.7GHz, 2C/4T, HD4600, 3MB L3 cache, 37W TDP - Core i5-4300U SoC @ 1.9GHz, 2C/4T, HD4400, 3MB L3 cache, 15W TDP (Q3'14) - Core i5-4402E @ 1.6GHz, 2C/4T, HD4600, 3MB L3 cache, 25W TDP - Core i7-3612QE @ 2.1GHz, 4C/8T, HD4000, 6MB L3 cache, 35W TDP - Core i7-3555LE @ 2.5GHz, 2C/4T, HD4000, 4MB L3 cache, 25W TDP - Core i7-3517UE @ 1.7 GHz, 2C/4T, HD4000, 4MB L3 cache, 17W TDP	
Chipset	Intel mobile QM77/QM87 and SoC Express chipset supporting PCI Express 2.0 & 3.0	
Memory	Up to 16GB DDR3 1333 ECC memory	
Video	1 x DVI-D + 1x VGA from Intel HD Graphics	
Optional Video	AMD E6760 GPGPU with 128-bit memory interface with 1 GB GDDR5 or new E8860 with 2GB GDDR5 Video Inputs: Up to 2x HD-SDI Digital Video inputs and up to 4 x RS-170/NTSC/PAL, CCIR-601 Video Outputs: 2 DVI-D or 2 HD-SDI (factory option to STANAG-3350B...or other types)	
Ethernet ports	3 x Gb Ethernet (10/100/1000 Base T)	
Audio	Intel® High Def Audio: In and Out Lines	
Storage	- One 2"5 SSD Flash drive slot (removable option in Q3'14) - Or Two 1"8 SSD Flash drive slots (Intel® Rapid Storage Technology 1.0 supports RAID 1, 0) - One cFast slot	
Serial ports	4 x RS232/422/485 (software programmable) 4 x USB 2.0	
I/O extension	1 x PMC slot (conduction cooled) 1 x miniPCIe slot Support for GigE, MIL-STD-1553, ARINC 429, Serial ports, CAN... any I/O from PMC on dedicated MIL-DTL-38999 J5 connector	
Discretes I/O	Reset, Power Button, Power Led, HDD Led, Fast Erase, 8 x GPIO (TTL)	
Hardware monitor	P/S voltages, CPU, GPU, carrier board temperatures	
Watchdog timer	Programmable timer range to generate RESET	

Chassis specifications

Material	Aluminum 6061	
Internal cooling type	Conduction cooled with wedge locks to withstand severe vibrations and shocks	
External protection	Aircraft Grade anodized Aluminum	
Internal treatment	Surtec 650 chromital®	
Size (HxWxD)	88mm (2U) x 270mm x 250mm	
Weight	6.8kg	
Connectors	5 x MIL-DTL-38999 Serie III circular connectors	
Power supply	+28VDC (+9VDC* up to +36VDC) / MIL-STD-1275D* / DO-160 / MIL-STD-461/MIL-STD-704*	A: Power supply B: USB, Serial, GPIO, DVI-D + VGA C: Ethernet, Audio D: GPGPU I/O E: PMC I/O's F: Ground
Power consumption	< 90 Watts (Core i7 + GPGPU E6760 + 2 x SSD) < 50 Watts (Core i7)	

Environmental conditions

Cooling type	Convection & radiation by fins, conduction by cold plate
Ingress Protection Rating	IP67
Temperature	Operating: -40°C / +71°C (depending of the processor version and cooling methods) • Storage: -40°C / +85°C
Decompression	8000 to 50 000 feet
Altitude	Up to 15000 feet
Humidity	0%-95% relative humidity
Salt fog	50% salt spray / 96h
Fine dust	Wind and fine dust particles
Shock & Vibration	MIL-STD-810 / DO-160**
EMI / RFI	MIL-STD-461 / DO-160 (Fully sealed Faraday cage and complete EMI/RFI filtering)
CE certification	EMC: UE 2004/108/CE ; EN 61000-6-2, EN55022, EN 55024 SAFETY: UE 2006/95 CE

Software

Operating system	Linux / Windows 7 Windows Embedded Standard 7 / ElinOS Embedded Linux
Graphic features & framework	DirectX 11, Open GL 4.1, AMD Eyefinity Technology, Open CL 1.2
Dependability	BIT, Fast BIT

* available in Q3'14. ** Consult ECRIN Systems for levels and sections qualification passed.

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