# Product information

## Microprocessors

| Device name or family | TID | CPU frequency (MHz) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency (W) |
|---|---|---|---|---|---|
| PowerPC7448 | 100 krads | 1000, 1250, 1267 | 32 | 1.0 to 1.3 / 1.8, 2.5, 3.3 | 8.4 |

| DSP/Multiplication hardware support (bits) | Cache (kbytes) | DMA / Memory controller | Package | Serial, parallel I/O | Temperature range (Tj) °C | Quality level |
|---|---|---|---|---|---|---|
| 128-bit AltiVec vector processor | L1: 32KI/D, L2: 1024K | – | HITCE 360 | MPx / 60x Bus interface | -55 to +125 | Target QMLY |

| Device name or family | TID | CPU frequency (MHz) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency (W) |
|---|---|---|---|---|---|
| PowerPC8548 | Target 100 krads | 1200, 1330 | 32 | 1.1 / 2.5 / 3.3 | 7.9 |

| DSP/Multiplication hardware support (bits) | Cache (kbytes) | DMA / Memory controller | Package | Serial, parallel I/O | Temperature range (Tj) °C | Quality level |
|---|---|---|---|---|---|---|
| – | L1: 32KI/D, L2: 512K | DDR-1/2 SDRAM, SDRAM, DRAM, SRAM, Flash | HiTCE 783 PBGA 783 | Four 10/100/1000 Ethernet, DUART, Dual I²C, two 32-bit PCI, PCI-Express, GPIO, SRIO | -55 to +125 | Target QMLY |

## Broadband data converters

### Typical parameters

| 10 BIT 1.5 GSPS SINGLE CORE L-BAND ADC | TID | 0.5dB BW | 3dB BW | Power | Energy * | Input voltage | Input type | Supply voltages | Latency | ENOB @ Fin... | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | at Nyquist | Range | | Vcca / Vccd / Vcco | (max speed) | 100MHz | 750MHz | 1800MHz |
| | 110 krads | 750MHz | 2.4GHz | 1.7W | 3.1pJ / Conv. | 500mV$_{P-P}$ | SE/Diff. AC/DC | 5.2V / 3.3V / 2.5V | 2.3ns | 8.5 | 8.4 | 8.0 |

| EV10AS180A Fs 1.5 Gsps | SNR @ Fin... | | | SFDR @ Fin... | | | Output type | DMUX | Analogue adjustments: | | | Available | Package | Quality level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 100MHz | 750MHz | 1800MHz | 100MHz | 750MHz | 1800MHz | | Ratio | Gain range | Offset range | Clk Skew | Grades | | |
| | 55dB | 54dB | 52dB | -60dBFS | -60dBFS | -59dBFS | LVDS | 1:2 / 1:4 | ±10% | ±10LSB | ±40ps | M, S | CICGA255 | ESCC9000 QMLV in progress |

### Typical parameters

| 12 BIT 3 GSPS MUXDAC | TID | 3dB BW | Power | Energy * | Output voltage | Input type | Supply voltages | Latency | NPR at optimum loading factor | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | at Nyquist | Range | | Vcca / Vccd / Vcco | (max speed) | 1st Nyquist Zone | 2nd Nyquist Zone | 3rd Nyquist Zone |
| | 110 krads | 7GHz (fpBGA) | 1.3W | 0.4pJ / Conv. | 1V$_{P-P}$ | LVDS 4:1 / 2:1 | 3.3V / 5V | 1ns | 50dB @ 3G 56dB @ 1.5G | 44dB @ 3G | 42dB @ 3G |

| EV12DS130A Clock 3 Gsps | ENOB (bits) | | | SFDR @ Fin...(-3dBFs out.) | | | Input type | MUX | Settings adjustments | | | Available | Package | Quality level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1st Nyquist | 2nd Nyquist | 3rd Nyquist | 1st Nyquist | 2nd Nyquist | 3rd Nyquist | | Ratio | Gain range | Input timing adj. | Output clk div. | Grades | | |
| | 10 @ 3G 10.8 @ 1.5G | 9 @ 3G | 8.2 @ 3G | 70 dBc | 61 dBc | 53 dBc | LVDS | 4:1 / 2:1 | ±10% | ±10LSB | 1; 2; 4; 8 | C, V M, S | fpBGA196 CICGA255 | ESCC9000 QMLV in progress |

### Typical parameters

| 10 BIT 3 GSPS MUXDAC | TID | 3dB BW | Power | Energy * | Output voltage | Input type | Supply voltages | Latency | NPR at optimum loading factor | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | at Nyquist | Range | | Vcca / Vccd / Vcco | (max speed) | 1st Nyquist Zone | 2nd Nyquist Zone | 3rd Nyquist Zone |
| | 110 krads | 7GHz (fpBGA) 6GHz (CICGA) | 1.3W | 0.6pJ / Conv. | 1V$_{P-P}$ | LVDS 4:1 / 2:1 | 3.3V / 5V | 1ns | 45dB @ 3G 51dB @ 1.5G | 40dB @ 3G | 38dB @ 3G |

| EV10DS130A Clock 3 Gsps | ENOB (bits) | | | SFDR @ Fin... (-3dBFs out.) | | | Input type | MUX | Settings adjustments | | | Available | Package | Quality level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1st Nyquist | 2nd Nyquist | 3rd Nyquist | 1st Nyquist | 2nd Nyquist | 3rd Nyquist | | Ratio | Gain range | Input timing adj. | Output clk div. | Grades | | |
| | 9.2 @ 3G 9.6 @ 1.5G | 8.0 @ 3G | 7.8 @ 3G | 65 dBc | 58 dBc | 51 dBc | LVDS | 4:1 / 2:1 | ±10% | 8 steps of interface clock | 1; 2; 4; 8 | C, V M, S | fpBGA196 CICGA255 | ESCC9000 QMLV in progress |

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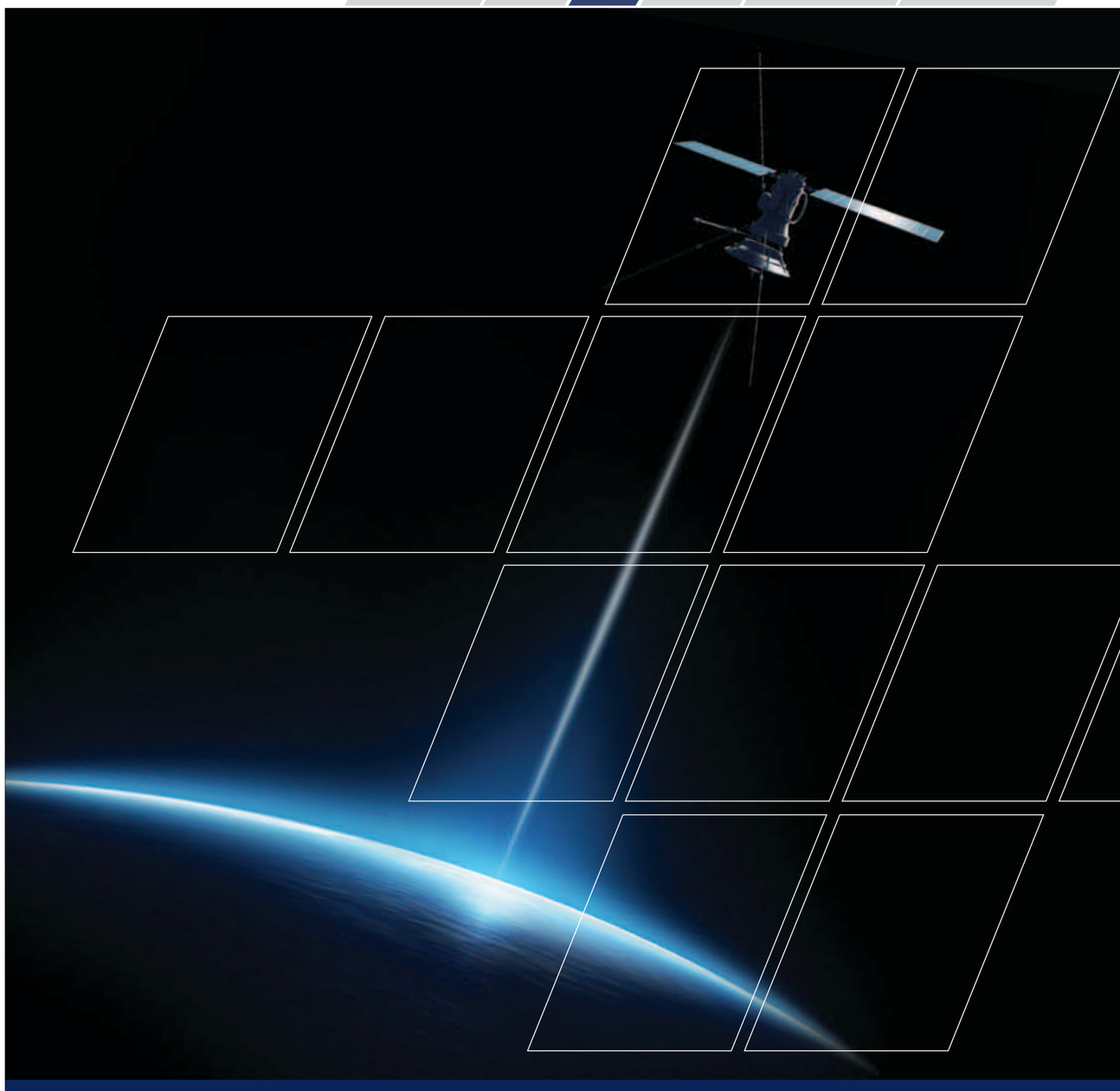
Issue 1 11/14

# e2v Space grade semiconductor solutions

CIVIL AEROSPACE | DEFENCE | SPACE | INDUSTRIAL | MEDICAL & SCIENCE | SECURITY & RESCUE



A new class in space grade semiconductor solutions

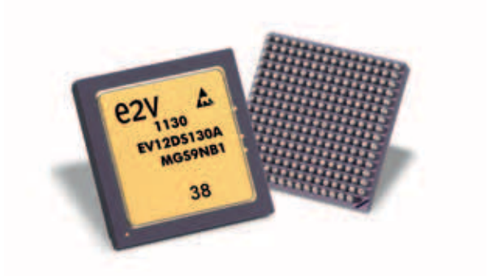
**e2v.com/space**

# e2v radiation tolerant products increase capability and reduce cost of ownership in a range of space applications

### Broadband data converters

e2v's ADCs and DACs create real value for multiple space applications through:

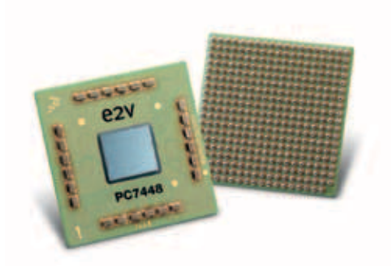
- Removal of frequency converters through microwave capability, removing cost of devices valued over $100k
- Advanced encryption using software defined cross-band frequency hopping
- Calibration free, both at power-up and versus temperature
- Stable performance versus temperature
- Clean spur-free spectral performance




### Microprocessors

e2v's microprocessors increase capability and savings in space applications through:

- NASA QML Class Y qualified microprocessors
- On-board satellite processing algorithms, removing the need to process data on the ground
- New forms of advanced data processing systems
- Compatibility with advanced computing platforms run on-board the satellite
- Industry-proven Power Architecture™ processor platforms




## Applications

### Our rad-hard semiconductors increase capability and reduce long term costs in a range of space-based applications

### Telecommunications satellites

- Removal of frequency converters reduces cost, weight and power on each transmit and receive channel
- Large Nyquist zones of up to 1.5GHz enable the handling of a high number of leased FDMA channels per hardware signal chain
- Stability versus temperature guarantees high performance, even on low orbit satellites where temperature varies constantly

### Weather satellites

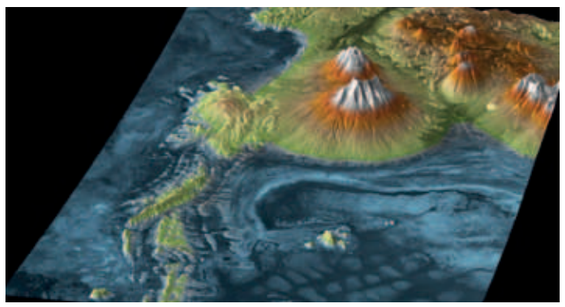
- e2v's GHz class processors unlock the computation capabilities on board satellites, providing weather forecasting organisations with richer, real time data
- Heavy computation can be performed on data from various sources, including radars and optical sensors operating in various spectrums

### Optical Earth observation

- e2v's processing power enables on-board image processing for image recognition
- Real-time on-board image recognition can detect hazardous situations as they're developing, ideal for weather monitoring agencies and security and rescue teams
- e2v microprocessors are powerful enough to process the highest resolution images, like the image to the left that was captured using e2v high performance imaging sensors

### Earth observation data downlink

- e2v's BDCs allow for the removal of frequency converters, reducing both weight and power needs, significantly reducing cost
- Large Nyquist zones combined with high output enable large cross-band frequency hopping for unrivalled encryption
- Nyquist zones up to 1.5GHz enable a hardware signal chains to handle high numbers of FDMA channels
- Stability versus temperature guarantees stable and reliable performance on low orbit satellites where temperature varies constantly



### SAR radar Earth observation

- e2v microprocessors are ten times more powerful than common space grade processors
- e2v's microwave capable data converters allow for the removal of frequency converters, reducing both weight and power needs, significantly reducing cost
- Large Nyquist zones up to 1.5GHz allow for high SAR imaging resolution
- Stability versus temperature guarantees stable and reliable performance on low orbit satellites where temperature varies constantly
- Software Defined Microwave capable semiconductors accommodate different frequency regulations as the satellite flies over different world territories