# ADVANCED PRECISION PERFORMANCE

Developed to deliver 'always-on' operation, KRYTEN computing solutions work every time on time. Flight proven across multiple mission applications for a range of customer requirements this readily available solution has inherited advanced error detection and correction. Incorporating a Cortex-M3 processor and enhanced hardware/firmware recovery mechanisms the Kryten-M3 delivers advanced precision performance for the most demanding nanosatellite missions.

Our reliable space data handling solution is safeguarded with autonomous single event latch-up protections, delivering high performance computing with integrated cache, Non-Volatile Memory and SECDED protections. MRAM and Flash memories are protected via an EDAC mechanism to guard against radiation effects. This mechanism provides protection, not only against data modifications, but also against errors in the address decode logic. Non-volatile MRAM memory provides zero-boot and zero-sleep times for power efficiency. The inclusion of 4 GB of SLC flash memory provides ample space for mission data storage. For missions requiring GNSS, GPS is available on Kryten-M3-PLUS.

## PERFORMANCE

With SmartFusion 2 SoC including Cortex-M3 processor @ 50 MHz delivering 62.5 DMIPS, providing impressive performance. KRYTEN models have 8 MB MRAM for code storage and execution as well as 4 GB flash memory for bulk data storage provides ample space for mission data storage.

## RELIABILITY

Our inbuilt protections are based on over a decade of design heritage guarantee real-time-on-time operations. KRYTEN solutions have autonomous single event latch-up protection, integrated cache and Memory Protection Unit, EDAC protected memories and FIFOs. JTAG with ETM support is available for programming and debugging.

## EFFICIENCY

Requiring <1W during operations, it is one of the most power efficient off-the-shelf on-board computers available on the market. Data protections used, Cryptographic Accelerator and Reed Solomon Accelerator, simultaneously act as hardware accelerators for maximum performance.

# TECHNICAL SPECIFICATIONS

| General | |
|---|---|
| Design Life | 5 years in LEO |
| Processor | Smart Fusion 2 SoC including an ARM Cortex-M3 processor delivering 62.5 DMIPS |
| Processor Clock | 50 MHz |
| SCET | Real time counter (w/40mins. Backup Power) |
| MRAM | 8 MB |
| Operating Temperature Range | -40°C to +80°C |
| Boot Image Storage | 256 kB eNVM + 8MB MRAM |
| Radiation (TiD) | 20 kRAD |
| Typical Energy Usage | 6.4 mJ/DM |
| GPS (PLUS model only) | <10m RMS position accuracy <1m/s RMS velocity accuracy |

| Interfaces | | |
|---|---|---|
| I2C | | 2 |
| SPI | 7 Chip Select Lines | 1 |
| UART | 3.3 V Logic | 8 |
| RS422 1 | (can be used as 2xRS485) | 1 |
| CAN | | 1 |
| DTMF | | 1 |
| | JTAG w/ETM Support + 1 Serial | |
| Debugging | Debug | 1 |
| LVDS | 20x Lines, Expansion | 1 |
| QSPI | (2x LVDS, 1x 3V3 Logic) | 3 |
| GPIO | 3.3 V Logic | 17 |

\* Not all interfaces available simultaneously

| Size, Weight & Power | |
|---|---|
| Nominal Power Consumption | 400 mW (typ), 1 W max |
| Mass | 61.9 g |
| Length | 95.89 mm |
| Width | 90.17 mm |
| Height* | 5.51 mm |

\* Height from top PCB to lowest component
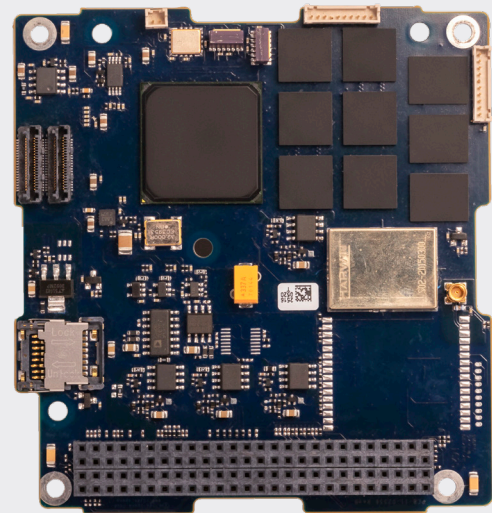
To make an enquiry, request a quotation or learn about AAC Clyde Space's other products and services, please contact:
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