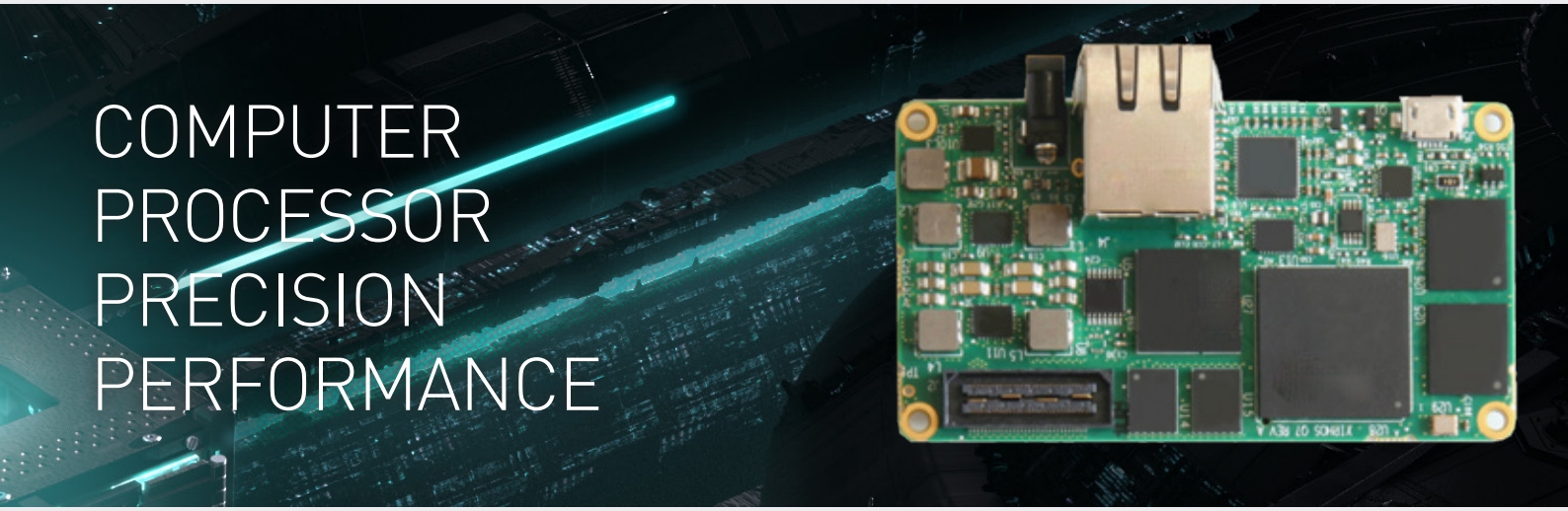
AAC CLYDE SPACE

Command & Data Handling

Q7S



COMPUTER PROCESSOR PRECISION PERFORMANCE

The Q7S, available via AAC SpaceQuest, is the latest in the Xiphos Q-Card family of low-cost, embedded nodes for control, processing and interface applications, primarily for aerospace markets. Q-Cards combine a small form factor with broad networking, processing and I/O capabilities. The Q7S is consists of a Q7 card which is ultimately capable of being used in space, loaded with space-ready software and firmware and rigorously tested. At the core of each Q7S is a hybrid environment of powerful CPUs and reprogrammable logic, providing consistent, reliable performance. The library of logic and software functions is augmented by onboard analog and digital I/O.

KEY HIGHLIGHTS:

- TMR Logic

  TMR (Triple Mode Redundancy) can prevent errors in the firmware from propagating and in some cases, correct them.
- EDAC for RAM

  EDAC (Error Detection and Correction) logic and software can detect and correct errors and scrub the RAM.
- Health Monitoring

  The Q7S can detect error events and failures, monitor system statistics and

PERFORMANCE

The Q7 features an All-Programmable System-on-Chip (AP SoC), including multi-core CPUs supported by massive programmable logic resources and a wide array of hardware interfaces

POWER

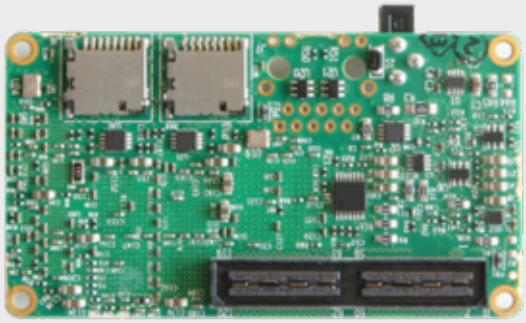
The Q7 measures 78 mm x 43 mm x 9 mm, has a mass of 24 g (excluding connectors) and consumes 1 W for typical applications. Its small size, low mass and power consumption make the Q7 ideal for aerospace applications.

FLEXIBILITY

The Q7 provides Gigabit Ethernet networking through its RJ45 connector, and USB 2.0 OTG. The Q7 also provides multiple digital I/O lines, including up to 24 LVDS pairs, and selectable RS-232/422/485 through its mezzanine connectors

TECHNICAL SPECIFICATIONS

Characteristics	
Memory	• Independent 1x512 MB and 1x256 MB LPDDR2 RAM chips • 2 MicroSD slots (max. 32 GB each) on independent buses / power control • 2x 64 MB QSPI Flash (NOR) • External mass memory interface
All-Programmable System-on-Chip	• ARM® dual-core Cortex™-A9 MPCore processors each up to 766 MHz • 106,400 flip-flops (FF) and 53,200 look-up tables (LUT) • DSP Slices 220
Control FPGA	• Actel ProASIC3
Operating System	• Linux 3.10+ • Optional alternative configurations, including RTEMS or bare-metal
Real Time Clock	• RTC with sleep & wake-up on alarm/interrupt • Dedicated power pin for external battery
Power	• Scalable, typ. 1 W • 6 V to 28V (options available for < 6V) • Power modes (including deep sleep) • Overcurrent detection and protection
Mass	• 32 g with RJ45 connector • 24 g without RJ45 connector
Form Factor	• 78 mm x 43 mm x 19 mm (with RJ45 connector) • 78 mm x 43 mm x 9 mm (without connectors)
Environmental	• Operating Temperature -40C to +85C
Interfaces	• Gigabit Ethernet (RJ-45) • USB 2.0 (Micro-AB) • Software selectable RS232/422/485 • Mezzanine connectors (90 I/O, up to 24 • LVDS pairs)
Space-Qualified Software	• Triple-mode redundancy • EDAC-protected RAM • Upset monitoring • FPGA Bit-stream scrubbing • Software robustness / watchdog



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enquiries@aac-clydespace.com

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