Q7 SPECIFICATIONS

XIPHOS
AN EPIQ SOLUTIONS COMPANY

FEATURE HIGHLIGHTS

INDUSTRY LEADING PERFORMANCE

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

LOW MASS, VOLUME, POWER

The Q7 measures 78 mm x 43 mm x 9 mm, has a mass of 24 g (excluding connectors) and consumes 2 W for typical applications. Its small size, low mass and power consumption make the Q7 ideal for aerospace applications.

INTEGRATED HYBRID ENVIRONMENT

The application space in a Q7 is a tight integration of dual ARM Cortex A9 MPCore processors and programmable logic, featuring 106,400 flip flops and 53,200 lookup tables reserved for application-specific use.

FLEXIBLE INTERFACING

The Q7 provides Gigabit Ethernet networking through its RJ45 connector and USB 2.0 Host port. 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.

PRODUCT INTEGRATION MODULE (PIM)

Each Q7 is delivered with a detachable PIM to facilitate development. The PIM provides standard commercial interfaces (e.g. CAN, RS-232/422/485, 1-Wire, 12 GPIO, 4 analog inputs, JTAG), debug LEDs, and other lab development features.

SOFTWARE DEVELOPMENT

Xiphos provides an Application Development Kit with standard Linux libraries for C/C++ to support software development on Linux workstations. Code previously developed for Linux desktop and server applications can be easily ported to the Q7. Q7 hardware and logic interfaces are all accessible through either standard Linux and Xilinx kernel drivers or custom drivers provided by Xiphos.

LOGIC DEVELOPMENT

Logic development uses standard Xilinx development tools. Xiphos, Xilinx, and many third party vendors also provide a wide range of compatible reusable logic cores for Xilinx FPGAs.

FAULT TOLERANT

Fault tolerance features include:

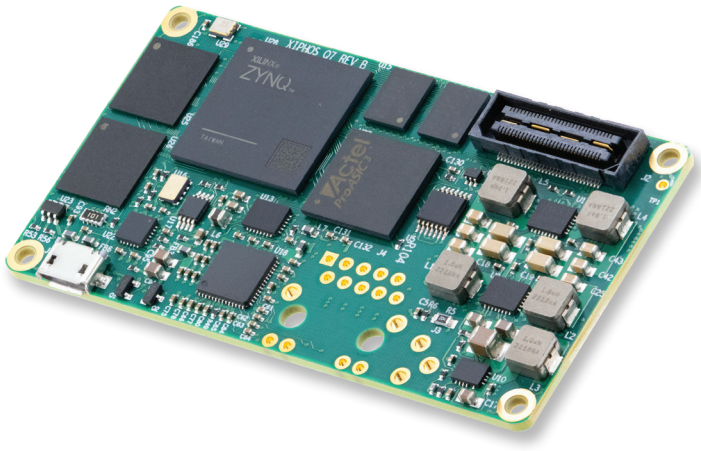
- Q7 can detect and correct faults within itself
- Combination of software and logic processing creates an excellent fail safe environment; logic can also be made triple mode redundant (TMR)
- TMR logic in flight model version of Control FPGA (Q7S)
- EDAC on RAM
- Redundant QSPI NOR Flash and MicroSD

FLIGHT HERITAGE

The Q7S, the Flight Model (FM) of the Q7, has been operating in orbit since June 2016. The Q7S is certified for manned space flight and is used on the International Space Station

Other flight heritage products in the current Xiphos Q-Card family include the Q8S and Q8JS

Xiphos has been flying previous generations of the Xiphos Q-Card family since 2002



CHARACTERISTICS

MEMORY

- 1 GB (512 MB with EDAC) DDR3L DRAM
- 2x 128 MB QSPI Flash (NOR)
- 2 MicroSD slots (max. 32 GB each) on independent buses / power control

MULTI PROCESSOR SYSTEM ON CHIP

- Xilinx Zynq 7020
- Dual core ARM Cortex A9 MPCore processor at up to 766 MHz
- 106,400 flip flops (FF), 53,200 lookup tables (LUT), and 220 DSP slices

CONTROL FPGA

- Microchip ProASIC3

OPERATING SYSTEM

- Yocto Linux BSP (LTS distribution)

REAL TIME CLOCK

- RTC with sleep & wake up on alarm/interrupt
- Dedicated power pin for external battery

POWER

- Scalable, typ. 2 W
- 6 V to 15 V (5 V to 28 V option)
- 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 RJ45 connector)

ENVIRONMENTAL

- Operating Temperature derated to -40 to +60 °C

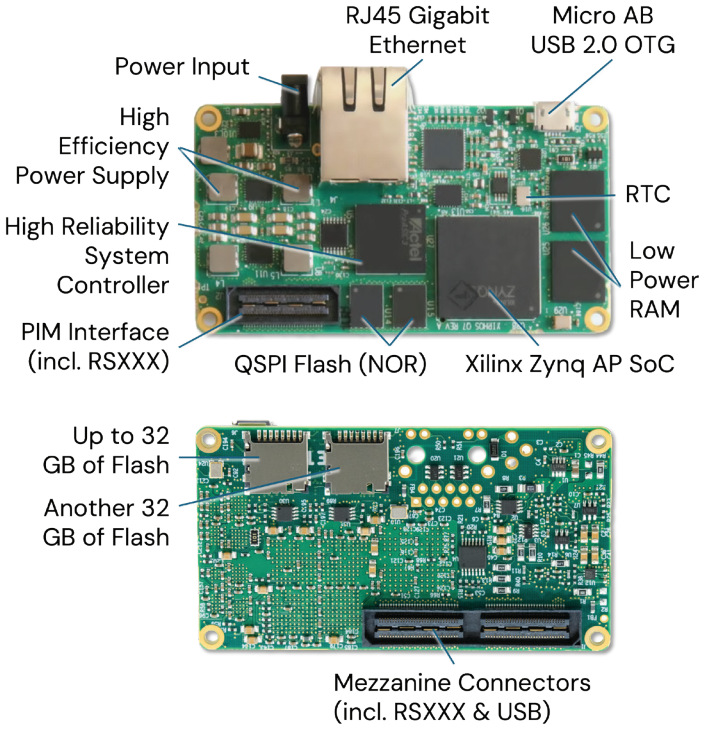
INTERFACES

- Gigabit Ethernet (RJ45)
- USB 2.0 Host port (Micro AB)
- CAN Bus controller (in logic)
- Up to 58 single-ended GPIO, 23 MIO, 24 LVDS pairs/48 single-ended GPIO, USB 2.0, and factory-selectable RS-232/422/485 (Mezzanine connector)

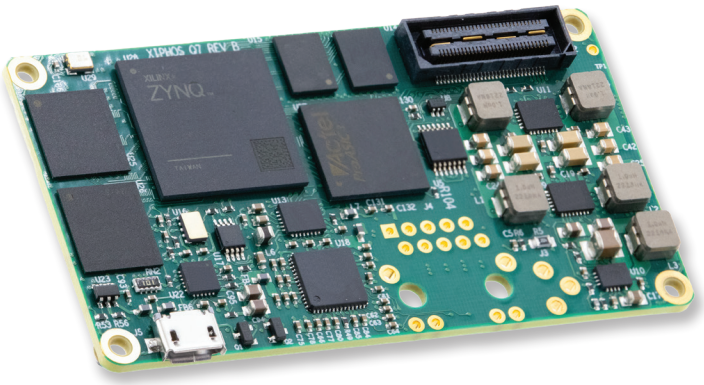
Q7S FLIGHT MODEL INCLUDES

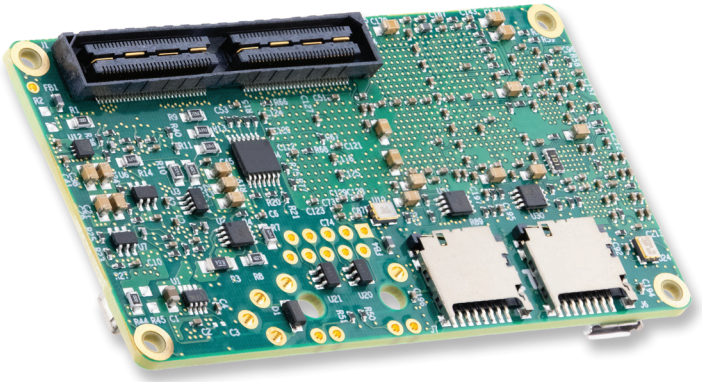
- Space-qualified software and logic
- Triple mode redundancy in Control FPGA
- EDAC-protected RAM
- Upset and multi-current monitoring
- FPGA bit stream scrubbing
- Software robustness / watchdog
- IPC Class 3 PCB and assembly workmanship

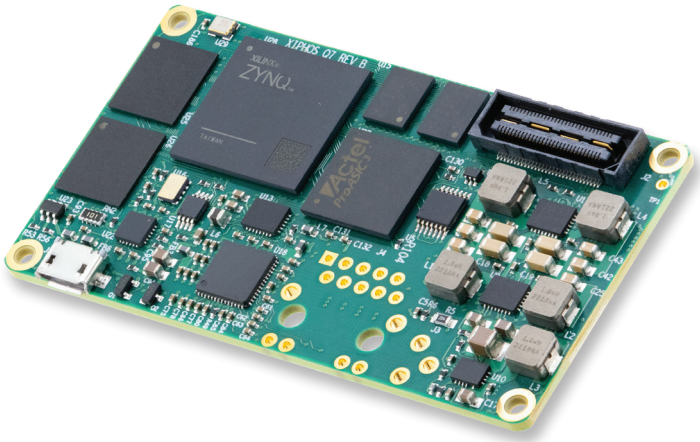
WHAT'S ON THE BOARD?

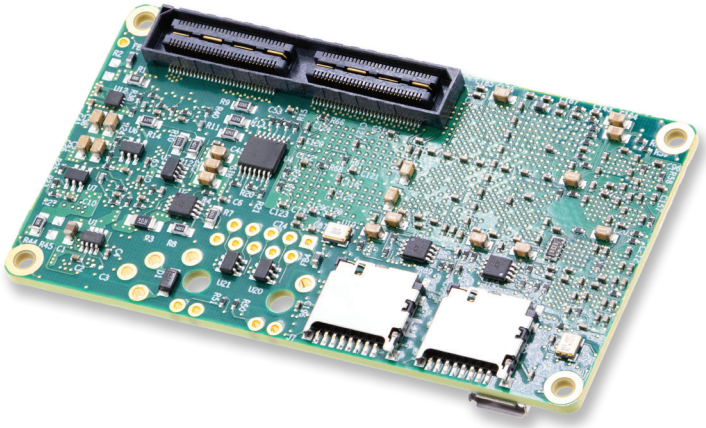


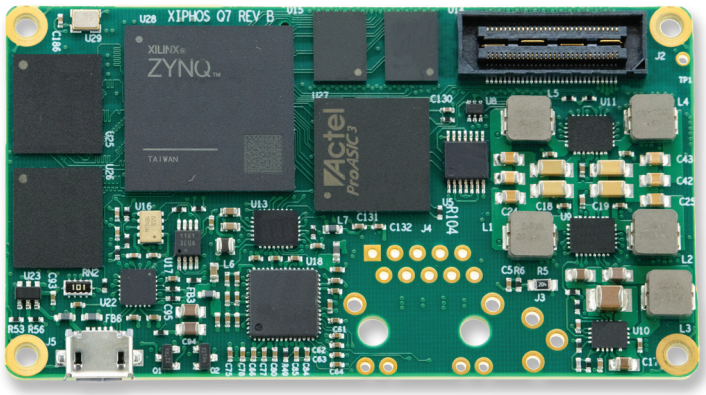
FRONT & BACK

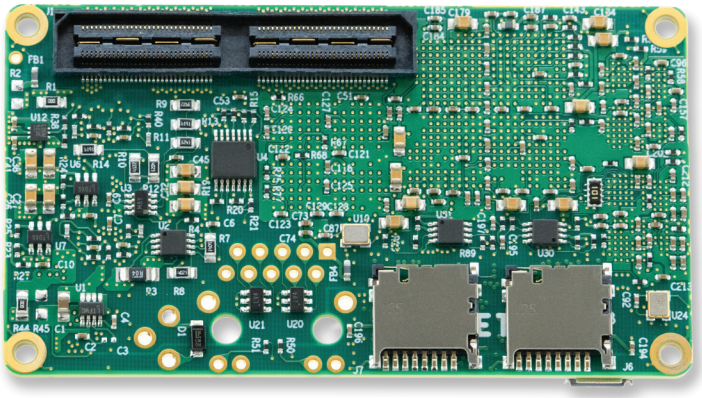


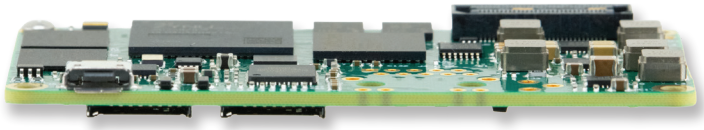










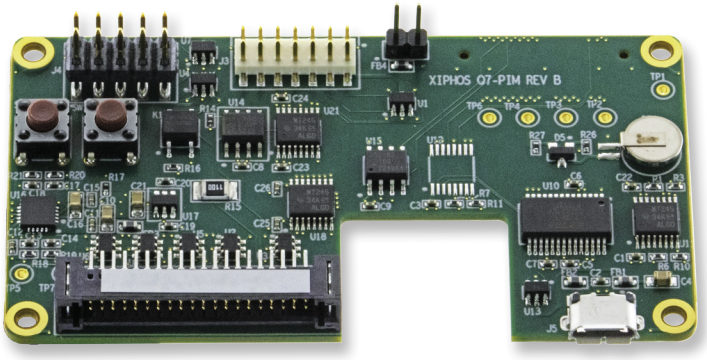


Q7 INCLUDED ACCESSORIES

Q7 units ship with the following as standard:

- Product Integration Module (PIM)
- 12V output wall-mount power supply
- Micro-B to USB cable
- Female A Micro USB to USB-A Female
- Ethernet Adapter to USB-A Male

Ethernet Adapter to USB-A Male



Q7 Product Integration Module (PIM)

Female A Micro USB to USB-A Female

12V output wall-mount power supply

Male Micro USB

WHY CHOOSE XIPHOS?

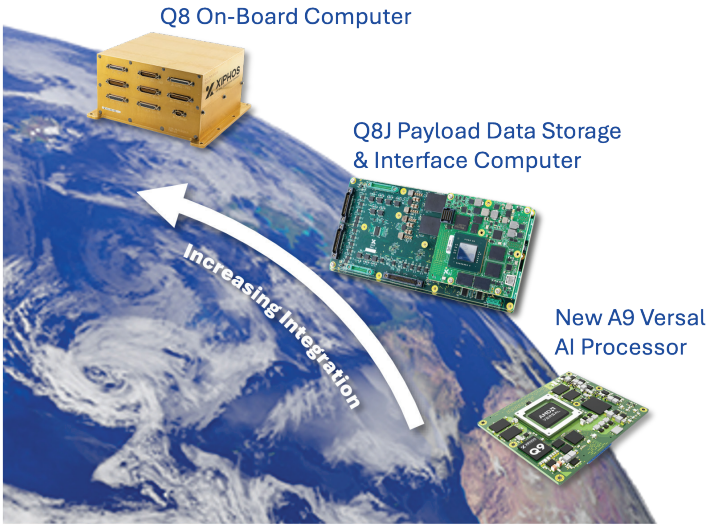
Faster Time to Launch Using COTS Processing With Heritage

FLIGHT-PROVEN PROCESSORS:
Space-hardened, COTS-based computing solutions deployed across hundreds of commercial, civil and defense missions.

HIGH PERFORMANCE:
Products offer impressive processing, networking, RF and storage performance by leveraging state-of-the-art commercial devices.

COST-EFFECTIVE PERFORMANCE:
Delivers high performance and reliability at a fraction of the cost of traditional space processors.

SCALABLE SOLUTIONS
Flexibility across the design stack ensures the right level of integration for your use case.

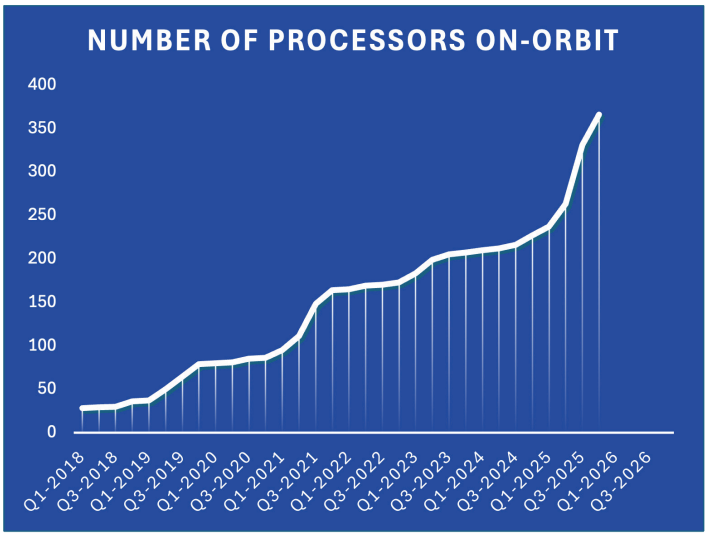


ABOUT XIPHOS

Xiphos, based in Montreal and part of Epiq Solutions since 2023, has over 20 years of experience delivering thousands of low-SWaP-C COTS-based processor cards for space applications including satellites, landers, rovers, and space stations. Known for high reliability, radiation tolerance, and strong customer support, Xiphos specializes in compact processing solutions using cutting-edge processors for commercial, scientific, and military missions.

IMPRESSIVE HERITAGE:
We've been a new space company for more than 20 years and have delivered many thousands of cards. In that time, we've accumulated a LOT of experience that you get to benefit from when you partner with us.

As of March 2026, our cumulative time on orbit stands at more than 691 years. In that time, we have had no on-orbit product failures and have more than 340 boards in space.



COMPACT, EFFICIENT, FLEXIBLE:
Ideal for spacecraft, unmanned systems, and robotics requiring small size, low power, and adaptability.

CERTIFIED QUALITY:
AS9100 and ISO 9001:2015 certified; explore our FPGA-based multiprocessors, SoCs, and advanced subsystems.

ENHANCED COTS SOLUTIONS
Optimizes the cost & performance trade while still providing radiation robustness

OPEN ARCHITECTURE DESIGNS
Enables development across a variety of toolkits

SHORTER LEAD TIMES
Shipping 500+ processors annually

21st May, 2026

www.xiphos.com
sales@xiphos.com

3981 St-Laurent Boulevard, Suite 500,
Montreal, Quebec, H2W 1Y5, Canada

XIPHOS
AN EPIQ SOLUTIONS COMPANY