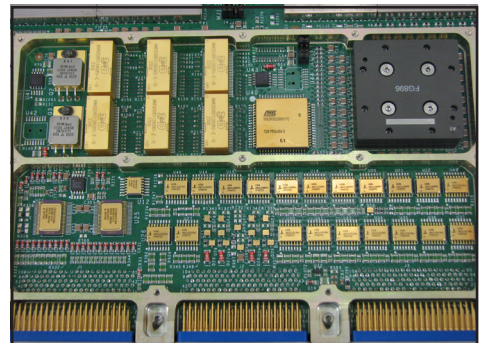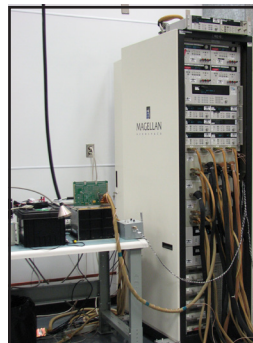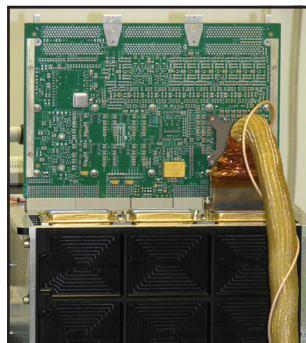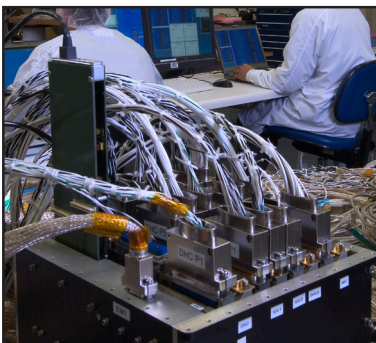**MAGELLAN**
A E R O S P A C E

COMMAND AND DATA HANDLING UNIT

FLIGHT PROVEN   •   RELIABLE   •   FLEXIBLE DESIGN

OVERVIEW

Magellan's expertise in command and data handling (C&DH) subsystems traces back to the Hermes/CTS mission in the 1970s and includes over 120 Black Brant sounding rocket flights, as well as Space Shuttle and International Space Station (ISS) experiments. Today's Magellan C&DH is a compact PCI-based system with a suite of peripheral cards (processor, data handling, power supply, input/output) that receives commands from the communications subsystem, performs command decoding and validation, and distributes commands to the appropriate subsystems and payloads. It also receives and packages engineering telemetry and science data from subsystems and payloads. The baseline product has a dual-string architecture consisting of an operational unit and a cold spare. If a fault should occur, the C&DH unit manager will initiate an autonomous non-recursive switchover to the redundant string. Magellan has NATO Secret facility clearance, is registered under the Joint Certification Program (JCP) of the U.S. Defence Logistics Agency, and is eligible for the Canadian exemption under ITAR Part 126.5.

HARDWARE CONFIGURATION

Compact PCI 6U form factor chassis in EMC/EMI tight enclosure, capable of supporting both 3U and 6U cards. Up to 8 cPCI slots (1 system, 7 peripheral). Capable of supporting customer-designed cPCI cards.
• CPU card (variety of processor options)
• Data handling card
• Power supply card
• Input/output card
• Mission specific cards (as required)

OPERATING MODES

Normal:	Prime unit active (essential and non-essential bus), backup unit in low power (essential bus)
Low Power:	Both units on essential bus only, power only 10% of normal consumption
Diagnostic:	Both units powered, ability to cross diagnose state-of-health

KEY FEATURES AND CHARACTERISTICS*

Mass:	<10 kg
Power Consumption:	34 W (average)
Dimensions (LxWxH):	27×23×21 cm
Processor:	Customizable (Baseline PowerPC™ 750FX)
Memory:	2.0 GB of mass memory (includes EDAC) 2.0 MB of essential bus memory and status log
I/O Interfaces:	TTL/CMOS discrete digital RS-422 full-duplex UART (Up to 115.2 kbps) RS-422 synchronous serial (Up to 6.6 Mbps) CAN bus interfaces
Command/Telemetry Handling:	Command decoding rates up to 5 Mbps Downlink data rates up to 8 Mbps CCSDS compliant
Reliability:	0.98 for 2 years

* Data for the baseline dual-string configuration.

FLIGHT HERITAGE

• CASSIOPE (on-orbit since 2013) • RADARSAT Constellation Mission (launched June 2019) • Space exploration mission (undisclosed customer)

ABOUT MAGELLAN AEROSPACE

Magellan Aerospace (TSX: MAL) provides products and solutions to the space, defence, and aviation markets, with facilities in Canada, the United States, Europe, and India. The company's Space and Rocket division has sixty years of flight heritage on NASA and CSA missions including Black Brant sounding rockets, sub-orbital payloads, Shuttle and ISS experiments, and satellite missions. Magellan's space solutions include the microsatellite-class MAC-100 bus and the smallsat-class MAC-200 bus, as well as payloads and subsystems including C&DH, power, ADCS, structures, and flight software. Magellan Aerospace has NATO Secret facility clearance, is registered under the Joint Certification Program (JCP) of the U.S. Defence Logistics Agency, and is eligible for the Canadian exemption under ITAR Part 126.5.

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Printed in Canada