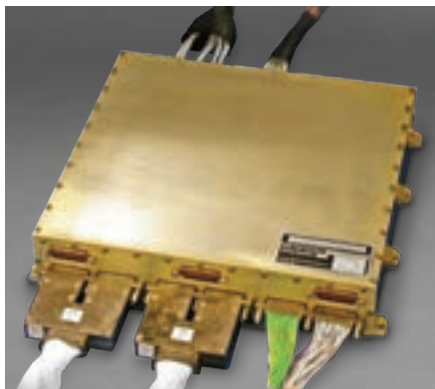# REDUNDANCY MANAGEMENT UNIT (RMU)

Our redundant avionics solution includes two Integrated Avionics Units and a triple redundant Redundancy Management Unit (RMU). This system provides an avionics solution for long duration GEO or other missions, as well as shorter missions with extremely high reliability requirements.

The redundant system accommodates specific mission requirements by tailoring existing IAU design and board heritage. The RMU design accommodates hot, warm, or cold sparing in an A/B side implementation. Features include scheduled "wake up" for verifying "B" side functionality and various watch dog functions.

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RDB BOARD

- Qty 2 4-pole relays (12A each pole)
- Qty 2 Auxiliary 28V power relays (4.5A)
- Qty 33 X-strapped RS422/LVDS Rx
- Qty 36 X-strapped RS422/LVDS Drivers
- Qty 4 LVDS X-Point switches
- Qty 20 Analog X-strap circuits
- Qty 2 RMU current analogs
- Qty 2 Lazarus relays
- TMR circuitry
- +3.3V & +5V Converters, EMI filters
- Hosts ARC & AUX boards

ARC BOARD

- RDB Power Control
- Qty 3 functionally identical circuits (SFT)
- Qty 3 CXS-810, DMX, & EGSE uplink command decode
- Qty 3 CMD and TLM interfaces to primary and secondary IAU each
- 512K (effective) bytes spacecraft state data storage
- Manual / Autonomous modes
- TMR circuitry for IAU converter inhibits
- Qty 3 fused protected +3.3V converters and EMI filters

MOOG
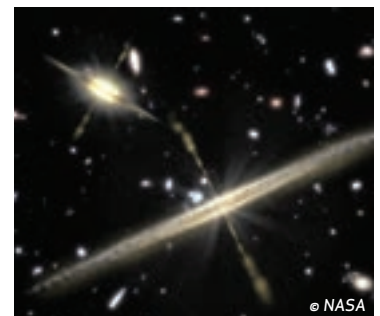
REDUNDANCY MANAGEMENT UNIT

AUX BOARD
- Qty 28 total RS422 / LVDS Drivers
- Currently configured for 24 RS422 & 4 LVDS drivers

REDUNDANCY FEATURES
- 2 Parallel IAUs (A/B Side
- 1 RMU

AUTONOMOUS MODE
- Monitors health of primary IAU, resets primary IAU on anomaly detection
- Make before break side swap to Secondary IAU on next anomaly

MANUAL MODE
- Hardware uplink commandable control over all functions
- Make before break side swap to Secondary IAU on next anomaly

SPACECRAFT STATE STORAGE
- 512K bytes TMR'd storage
- State data periodically refreshed by primary IAU
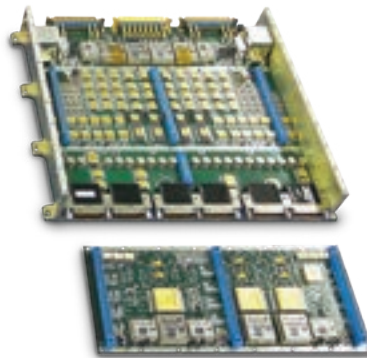- On side swap, state data available to secondary IAU for fast recovery

CROSS-STRAP
- X-strap control of RS422, LVDS, SERDES, and analog interfaces
- I/O directed to primary IAU when on, autonomously re-directed to secondary IAU on side swap

QTY 2 DIODE ASSEMBLIES
- Cross-strap of 28V power distribution and control

Integrated Avionics Unit

Redundancy Management Unit

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