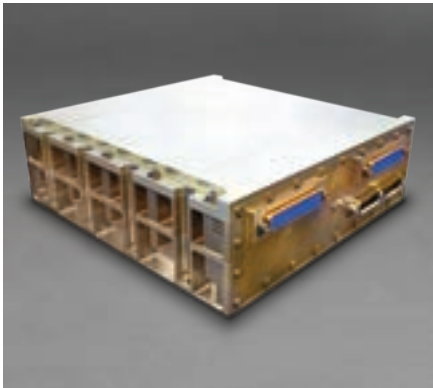


## MAIN AVIONICS CONTROLLER

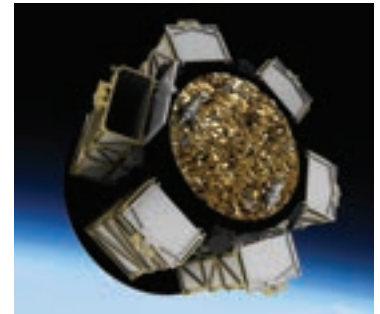


Moog's MAC provides Command and Data Handling (C&DH) and Electrical Power Subsystem (EPS) solutions to address LEO and short-duration/technology-demonstration missions. MAC combines the traditional C&DH and EPS functions within a single, low size/weight/power (SWaP) unit. The MAC derives significant design and functionality from Moog's heritage TRL-9 Integrated Avionics Unit (IAU). The MAC consists of three (3)

circuit cards: C&DH, EPS and DC to DC power converter. The MAC is optimized for orbital radiation requirements and utilizes the appropriate commercial and EEE-INST-002 parts with options for Level -1, -2, and -3 EEE parts programs.

### KEY FEATURES

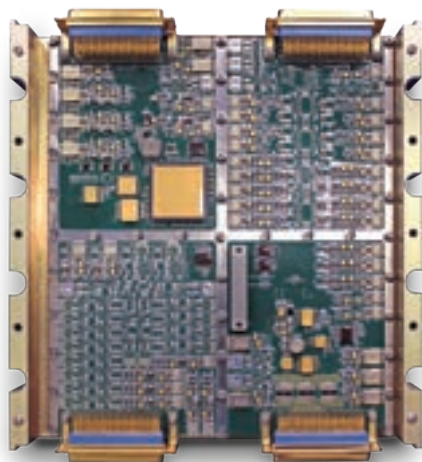
- Integrated C&DH and EPS Sub-System Functionality
- Supports all Sub-System Interfaces
  - LVDS/SpW/RS422/TTL/CAN/100Base-T
  - Telemetry, Tracking, & Command (TT&C)
  - Variable Downlink Rates and formats
  - Guidance, Navigation, & Control (GNC)
  - Payload Support
  - Structures and Mechanisms
  - Launch Vehicle and Ground Support
  - SBC Based Processor
  - Uplink Hardware Command Decode
  - NAND Flash Mass Memory with ECC
  - NOR Flash
  - DDR and DDR4 Memory with EDAC
  - 28V Power
- Power Distribution
- Propulsion
- Motor Drive Control
- Thermal Monitoring and Control
- Battery Charge Management
- Solar Array Charge Management
- Robust Safety and Fault Interlocks
- Dead Bus Recovery / End-of-Life Disposal Capability
- Environment: GEVS
- EEE Parts: Automotive/Commercial, EEE-INST Levels 1/2/3
- Radiation capability: SEL >37MeV/cm<sup>2</sup>, SEU Mitigated Design



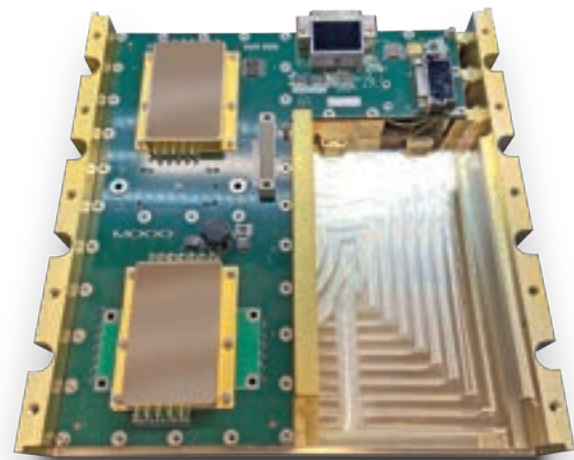
# MAIN AVIONICS CONTROLLER

## MAC FEATURED SUMMARY

Interface	Quantity	Interface	Quantity
RS422 (Tx)	92	Voltage (+3.3V) (Reg. Unswitched out)	1
RS422 (Rx)	92	Voltage (+5V) (Regulated Switched out)	5
LVDS (Tx)	10	Voltage (+15V) (Regulated Switched out)	1
LVDS (Rx)	10	Voltage (-15V) (Regulated Switched out)	1
RS485	4	2A LP Arm/Fire Switch	12
CAN Bus	2	2A LP Fire-only Switch	40
I2C Bus	2	10A HP Arm/Fire Switch	7
TTL/LVTTL (in or output) (3.3V or 5V)	112	10A HP Fire-only Switch	7
10/100 Base-T	1	HP Fire-only Switch (current protection)	3
Coarse Sun Sensor, 0-4000uA	12	6A HP Fire-only Switch	4
Differential Analogs 0-10V	16	H-Bridge Drivers	4
Analog Inputs (0-40V)	8	3-Phase Stepper Motor Drivers	4
Analog Inputs (0-10V) or AD590 Inputs or PRT/RTD/Thermistor Inputs (note inputs take two channels per input)	200	Solar Array Strings (5A/String)	14
AD590 (Excitation) Use 1 per 6 AD590	10	Unswitched Power	2
SBC Processor	1	Current Throughput (Amps)	72
TMR EEPROM (KBytes)	128	Lazarus Mode	1
DDR with EDAC (MBytes)	512	Power Output Inhibits	2
DDR4 with EDAC (GBytes)	4	Total Load Power (Watts)	2100
INTERNAL SOH	VAR	Size (cm): 23.6 x 24.5 x 8.8	
NOR FLASH (MBytes)	256	Mass (kg): (Typical)	5.8
NAND FLASH (GBytes)	48	Unit Power (W): (dependent upon use)	12-40



EPS 28V Power Controller



DC/DC Board with 3U Expansion Board Slot

**MOOG**  
SPACE AND DEFENSE GROUP

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