The Deep Space Systems CCA501 Camera Controller includes a space qualified INTEL i5 Single Board Computer with 1 Terabyte of Flash Memory.

**Size, Weight and Power:**
- Size: 12.5 x 7.3 x 3.87in. (W x D x H)
- Weight: 8 lbs
- Power: 120 VDC Power (28V DC option), 1.1 Amp Power

**Performance:**
- INTEL i5 High Speed Processor
- 32 MB Internal SD RAM, 1 TB Solid state drive
- 1 TB RAID 0, or 0.5 TB RAID 1 configurations
- Ethernet and RS 422 compatibility
- 5.8 GHz WIFI 802.11n + 60 GHz WiGig 802.11ac
- 4 X USB 3.0 with 5 Gbps data transfer rates
- LINUX based platform is fully programmable
- 80 W (5 VDC output) supports up to 8 cameras

**Environmental Qualification**
- Qualified operational baseplate temperature range in vac: -155°F to 209°F (-100°C to 100°C)
- Radiation Tolerant (proton and heavy ion radiation tested)
- Random Vibration: 22.3 G_{rms} Qual for 730 seconds
- Shock: 7187 Gs, Qual Peak Gs
- Aluminum-to-aluminum and connector body to aluminum bonding < 2.5 milliohms
- 40 dB shielding attenuation from 30kHz to 40GHz

**Single Board Computer Interfaces**
- USB 3.0 (x4)
- 1000 BaseT Ethernet
- HDMI
- MIL 38999 HiRel Connectors

**Single Board Computer Interfaces**
- PCIe TriBand 802.11ac Radio
- 2 X 5.8 GHz RF signal (primary and diversity)
- 15 GHz RF signal for multiplication to 60GHz
- RS-422 Command Interface to Power Supply Board
  - Allows CCA to put SBC in sleep mode and keep cameras/heaters powered

**Primary and Secondary Solid State Drive**
- Primary and Secondary Solid State Drive
- PCIe TriBand 802.11ac Radio
- 2 X 5.8 GHz RF signal (primary and diversity)
- 15 GHz RF signal for multiplication to 60GHz
- RS-422 Command Interface to Power Supply Board
  - Allows CCA to put SBC in sleep mode and keep cameras/heaters powered
CCA Random Vibration Levels

Camera Controllers, Abort Random Vibration, MPE Environments and Envelope - Normal

<table>
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<tr>
<th>Frequency (Hz)</th>
<th>ASD (g^2/Hz)</th>
<th>dB</th>
<th># of Octaves</th>
<th>Slope (dB/Oct)</th>
<th>Area g RMS</th>
<th>Slope (dB/Hz)</th>
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CCA Shock Qualification Levels

Camera Controllers, Individual and Envelope Attenuated Shock Environments

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<th>Frequency (Hz)</th>
<th>Shock Velocity (Peak)</th>
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<tr>
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WRA 50X Wired HD Camera

Weight ≤ 0.67 lbs.

- 5.3 Megapixel (2592 x 2048) CMOS Sensor
- 75 fps at Full Resolution
- In Flight Commandable Manual Controls
- USB 3.0 Interface
- Compatible with USB 2.0 at lower data rates
- Qualifiable interfaces include FireWire and Ethernet
- Dynamic Range: 53 dB
- Bit depth: 8- or 10-bit
- Example Frame Rates:
  - 75 fps at 2592 x 2048
  - 183 fps at 1980 x 1020
  - 250 fps at 1280 x 1024
  - 813 fps at 640 x 480

WLA501 Wireless Camera

Mass: 0.25 lbs

- 4K Video at 30 fps (recording)
- 1080P Video at 120 fps (recording)
- 12 Mp Full resolution stills
- Up to 720P Live Streaming via WiFi
- Auto and Manual Shutter Control and Exposure
- JPG and .mp4 files stored in internal 128 GB MicroSD Card
- HTML and FTP file transfer via WiFi
- LED “Head Light” Illuminator
- Internal Autonomous Heater Control When in Sleep Mode
- 5.8 GHz WiFi as Client in Assigned (Static) Frequency Channel
- (3W average 6 W peak) optional battery power (totally wireless)
- Internal Auto Sequence Execution, Reconfigurable In Flight via WiFi
- 3 Ruggedized and qualified lenses (many optional lenses available)
- May be operated in a fully wired mode (no RF emissions)
- Built in closed loop heater control when in sleep mode

Video and Imaging Camera System for The Orion Multipurpose Crew Vehicle

Orion Full EDU Ship Set (Less OpNav Camera)