FineView

Ultra High Resolution, Electro-optical Payload

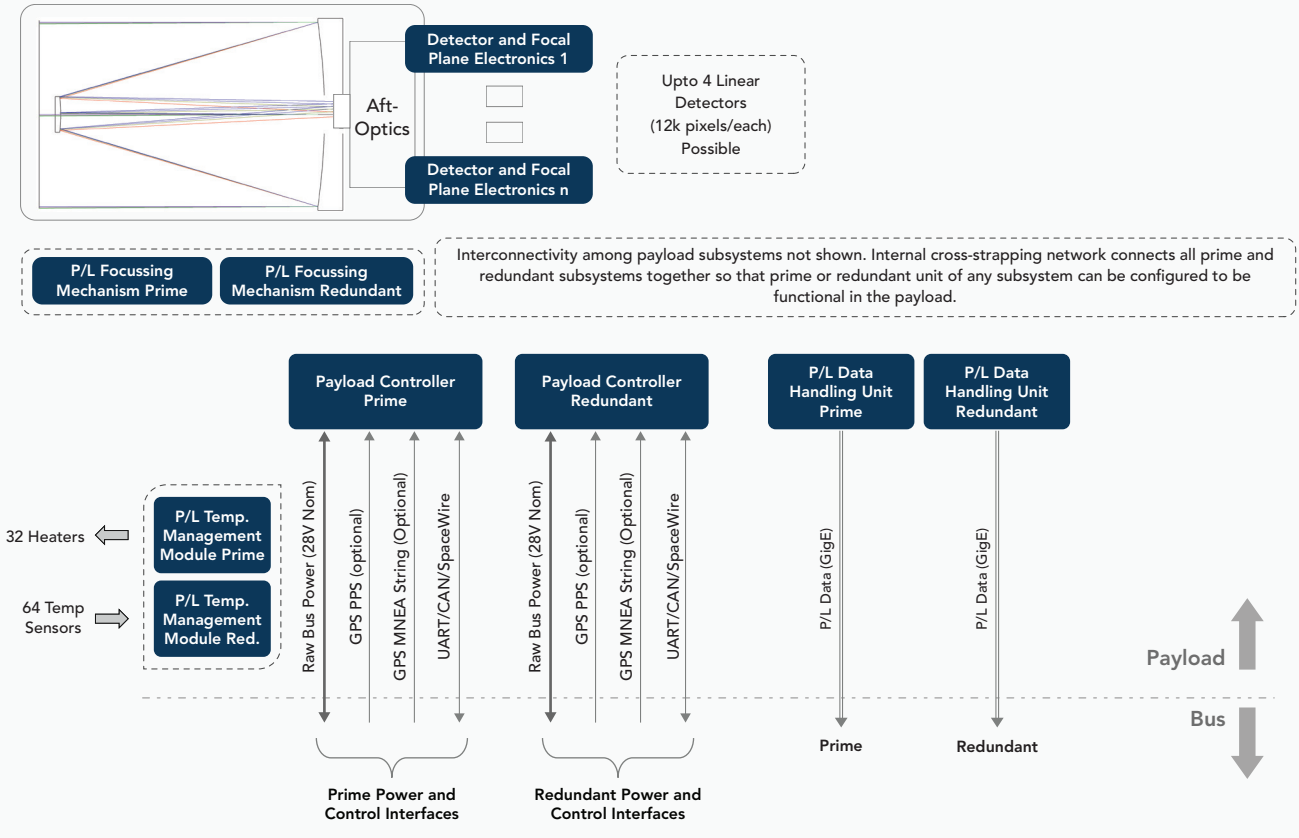


Salient Features:

Resolution
0.5 m PAN GSD

Swath
Upto 22 km @ 500 km Orbit

Imaging Spectral Bands
2 x PAN,
6 x Multispectral



Block Diagram: Payload Configuration

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Parameter	Specification				Units	Remarks
Variations	Crystal	Crown 2	Crown 3	Crown 4		
PAN GSD	0.5	0.47			m	@ Nadir from 500 km orbit
MS GSD	1.0	0.94			m	
Swath	6	11	16.5	22	km	
Type of Sensor	TDI CCD on CMOS					
Number of TDI Stages: PAN	Up to 128					Discrete steps
Number of TDI Stages: MS	Up to 64					
Spectral Ranges	PAN: 400 - 900				nm	
	MS1: 400 - 450 MS2: 450 - 520 MS3: 520 - 590 MS4: 630 - 690 MS5: 700 - 750 MS6: 770 - 890				nm	
Optics Aperture	500				mm	
Type of Optics	Modified RC	Korsch				
SNR	170	150				@ 20 % albedo and 60^0 sun elevation angle; For 128 stage TDI operations
MTF	5 to 7				%	1. System level MTF; ground processing may improve this. 2. MTF corresponds to the GSD.
Power Supply Voltage	28 (TBC)				V	Nominal
Functional Power Demand, Full Payload (average/maximum)	55/105	70/130	95/170	110/200	W	Including power requirements for thermal management of the payload. Power for storage / processing options is not included, the customer may refer to the Baseband Data Handling & Storage unit offered as an independent subsystem
Hibernation Power Demand, Full Payload (average/maximum)	30/65	45/110	60/150	75/185	W	
Power Demand of only OFE	14	28	42	56	W	Active condition
Bus Control Interface (Full Payload / Only OFE)	Half duplex UART on RS485				9600 - 115200 baud	CAN/ Spacewire can be offered as options
Bus Data Interface (Only OFE)	8x(P) + 8x(R) High Speed Serial	16x(P) + 16x(R) High Speed Serial	24x(P) + 24x(R) High Speed Serial	32x(P) + 32x(R) High Speed Serial	@ 2 Gbps each	Data is not formatted. Redundant ports possible
Bus Data Interface (without storage & processing option)	2x(P) + 2x(R) High Speed Serial	4x(P) + 4x(R) High Speed Serial	6x(P) + 6x(R) High Speed Serial	8x(P) + 8x(R) High Speed Serial	@ <10 Gbps per lane	Formatted frame data. External protocol conversion units may be employed to interface with existing data storage systems of buses
Bus Data Interface (with storage & processing option)	10G Ethernet / 8x LVDS @ 250 MHz					
Data Rate	7.5	15	22.5	30	Gbps	Image data rate not including communication overheads
Material of Mirrors	Silicon carbide					
Material of Structures	Silicon carbide					Minor content of Titanium/ Invar/ GFRP
Onboard Focusing	Yes					
Mass, Only OFE	< 52	< 55	< 58	< 61	kg	
Mass, Full Payload	< 63	< 66	< 69	< 71	kg	
Envelope	600 x 600 x 1100				mm^3	
Thermal Design	Isolated					The payload is designed to be thermally independent of the bus
Payload Temp. Maintenance	Autonomous					Payload electronics includes thermal maintenance
Radiator Size	0.1	0.2	0.3	0.4	m^2	To be oriented in the anti-sun side
Continuous Imaging Duration	20				mins/orbit	Ensured by thermal design (contact factory for more duration of continuous imaging)
Drift Requirement	0.63				m^0/s	1. For best image quality at maximum TDI setting. 2. Necessary drift rates at lower TDI settings will be correspondingly benign.
Jitter Requirement	5.7		5.4		μ^0	For best image quality
Optical Front End - OFE, i.e. camera alone without control and auxiliary functions like temperature maintenance and unified operational control.						

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Note:

1. All parameters are specified for a 500 km orbit or unless otherwise specified.
2. All the items are to be confirmed with the sales representative.

Abbreviations:

- **PAN:** Panchromatic • **MS:** Multispectral • **LEO:** Low Earth Orbit • **TDI:** Time-Delay Integration • **GSD:** Ground Sampling Distance
- **OFE:** Optical Front End • **CCD:** Charge Coupled Device • **CMOS:** Complimentary Metal Oxide Semiconductor • **RC:** Ritchey-Chretien
- **MTF:** Modulation Transfer Function • **GFRP:** Glass Fiber Reinforced Polymer • **SNR:** Signal to Noise Ratio