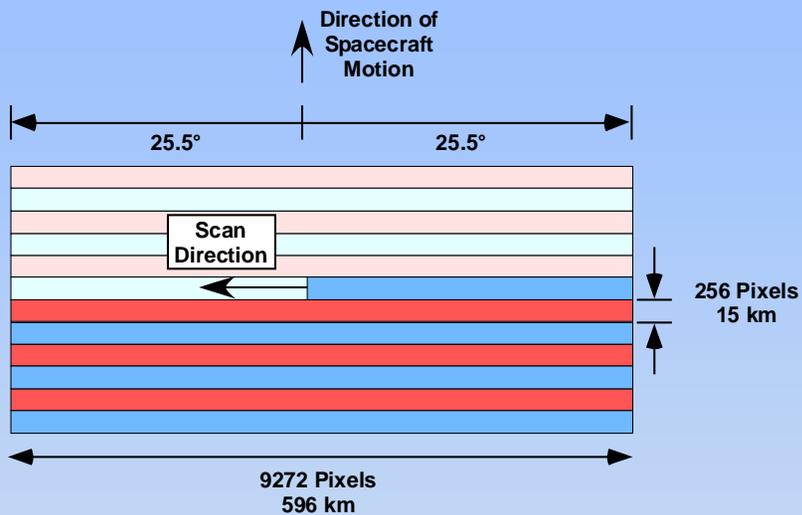




TIR Instrument Concept

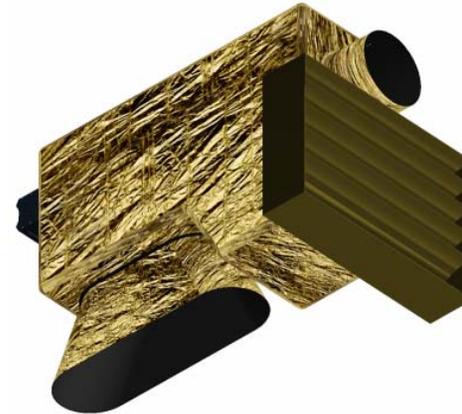
Scanning and Data Rate



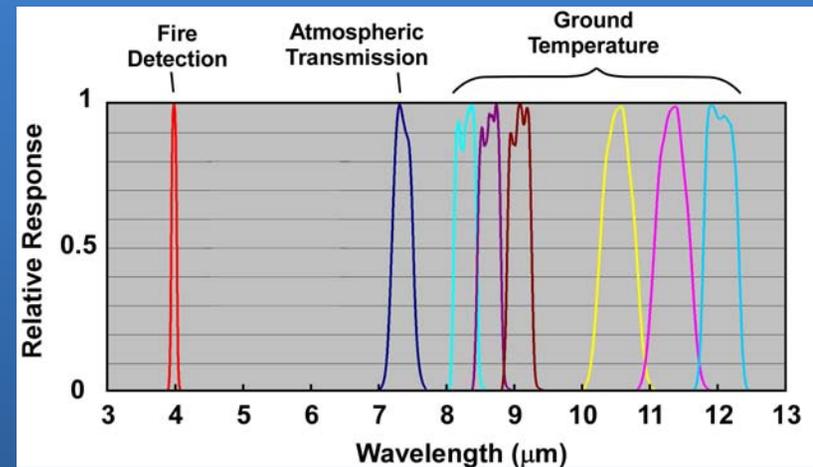
- 60 m Pixel Footprint
- Time-Averaged Science Data Rate 0.024 Gbps
- Assuming 14 bits, 2:1 Compression
- Scan Mirror Rotation Rate 13 RPM
- Pixel Dwell Time 34 microseconds

Mass and Power (JPL Team X)

- Mass CBE 66 kg
- Power CBE 78 W



Spectral Bands

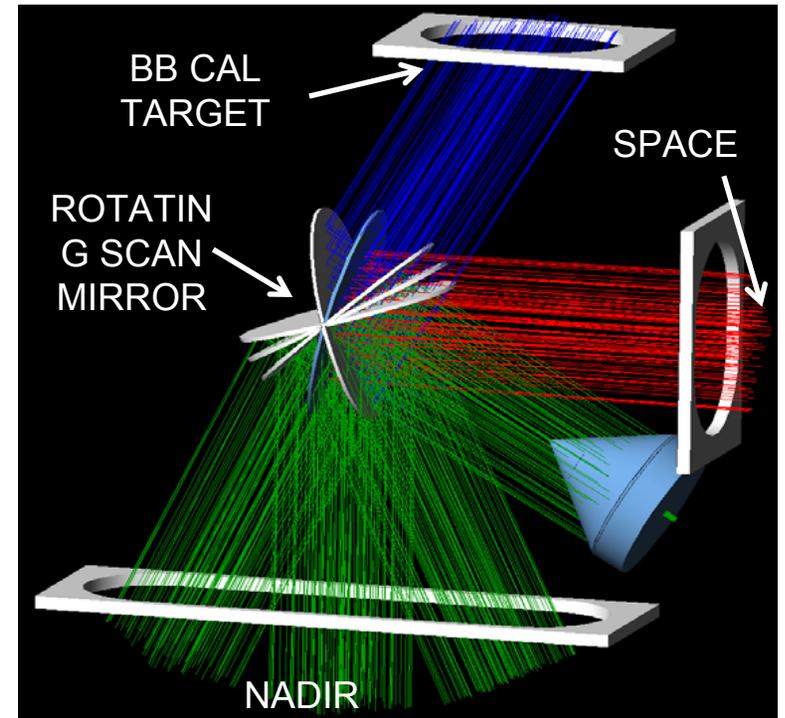
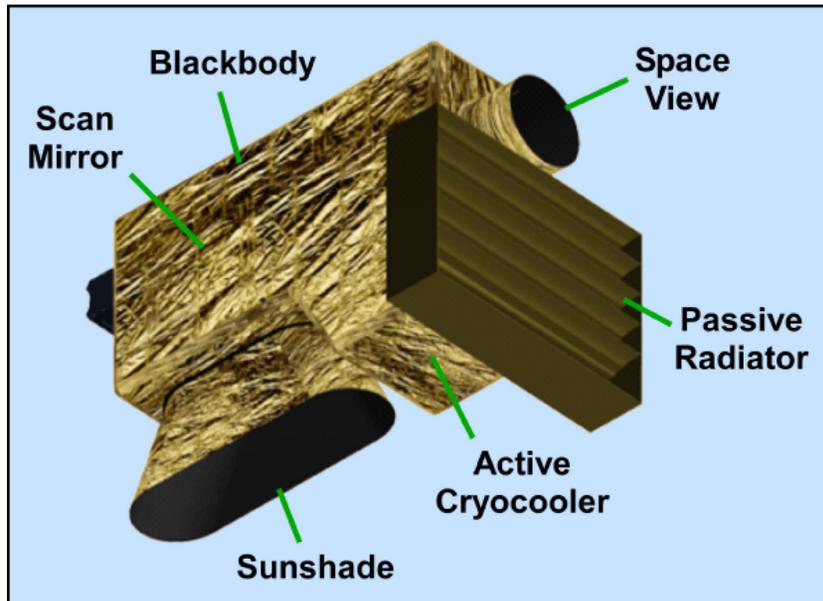




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California Institute of Technology
Pasadena, California

Conceptual TIR Layout

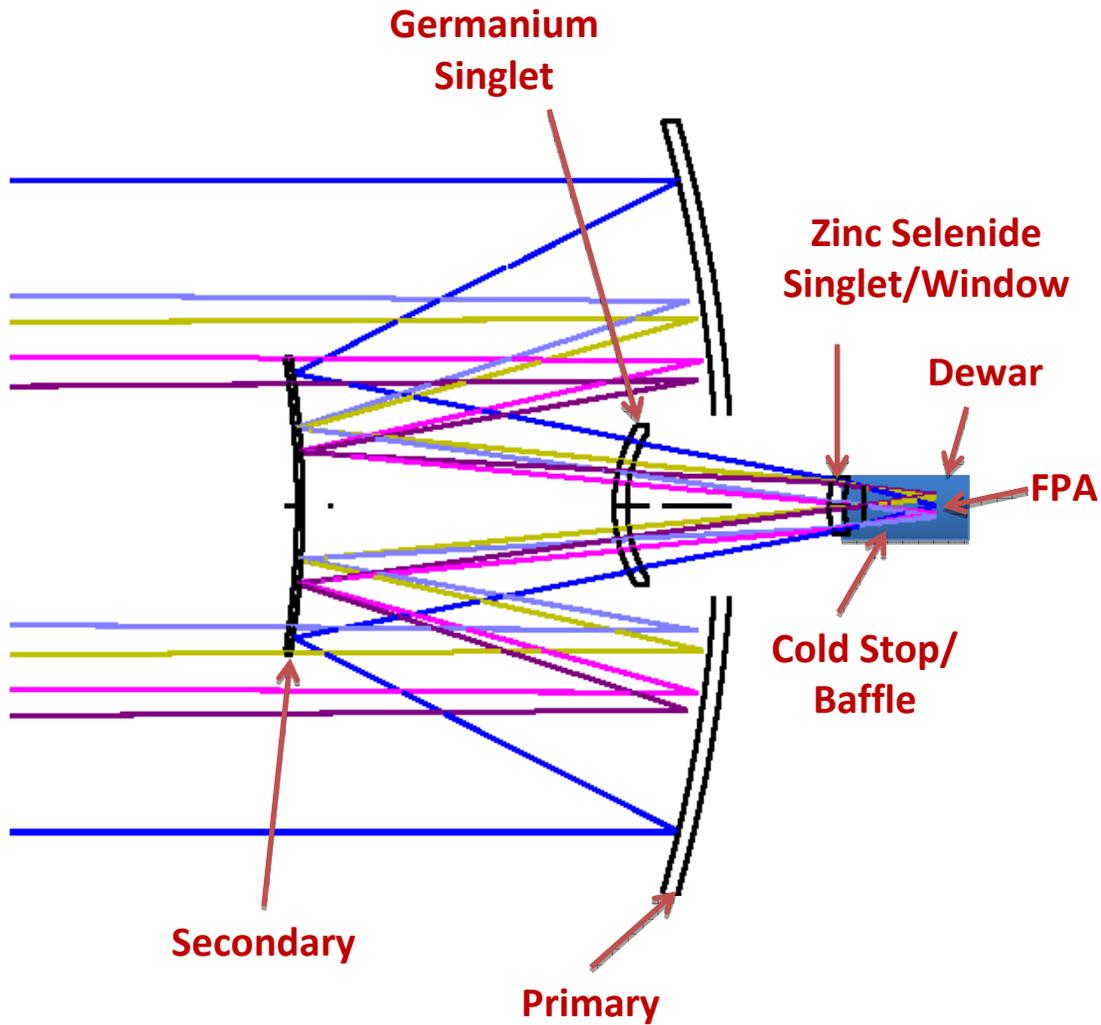




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Conceptual TIR Telescope



Optical Parameters

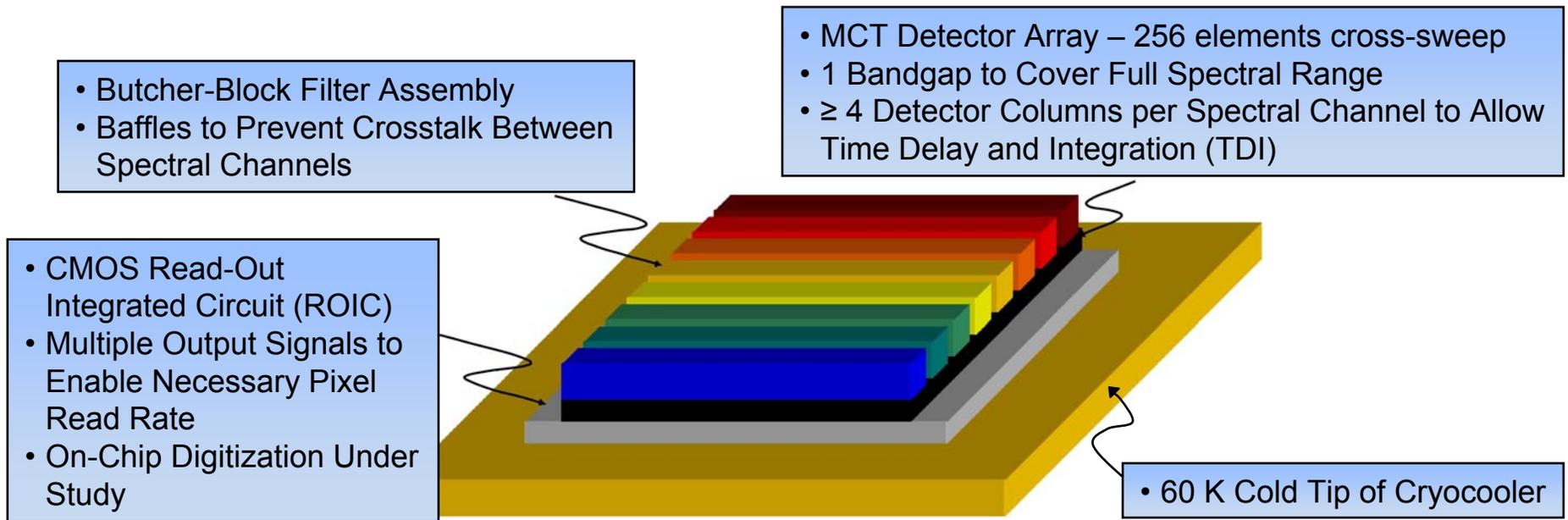
Parameter	Value
Aperture Size	260 mm
f/#	2.0



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TIR Focal Plane Concept



- Peak Data Rate = 240 Mpixels/sec! (256 detectors cross-sweep, x4 for TDI, x8 spectral bands every 34 μ s).
 - 24 analog output lines, each operating at 10 Mpixels/sec
 - Digitization in off-chip ADCs – for example, 3-4 Teledyne ADP 14x8 ASICs (standard Teledyne product)
 - TDI performed by FPGA after digitization



Potential TIR Cryocooler

- Baseline is NGST HEC (High-Efficiency Compressor) with 1 or 2 cold heads
- Compressor space qualified for MIRI on JWST
- Compressor with two cold heads is being qualified for Advanced Baseline Imager (ABI) on GOES-R. This configuration could be used build-to-print for HypsIRI TIR instrument.
- Other vendors have appropriate coolers that have similar maturity

NGST ABI (GOES-R) Cooler

