

Hyper Suprime-Cam

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HSC Components

- HSC Mechanics (telescope interface)
- Wide Field Corrector
- HSC Camera Mechanics
 - Dewar
 - Shutter
 - Filter Exchanger
- Sensor
 - CCD
 - Electronics
- Filter
- SH (mirror analysis) & Guider
- Data management

Mitsubishi
Canon

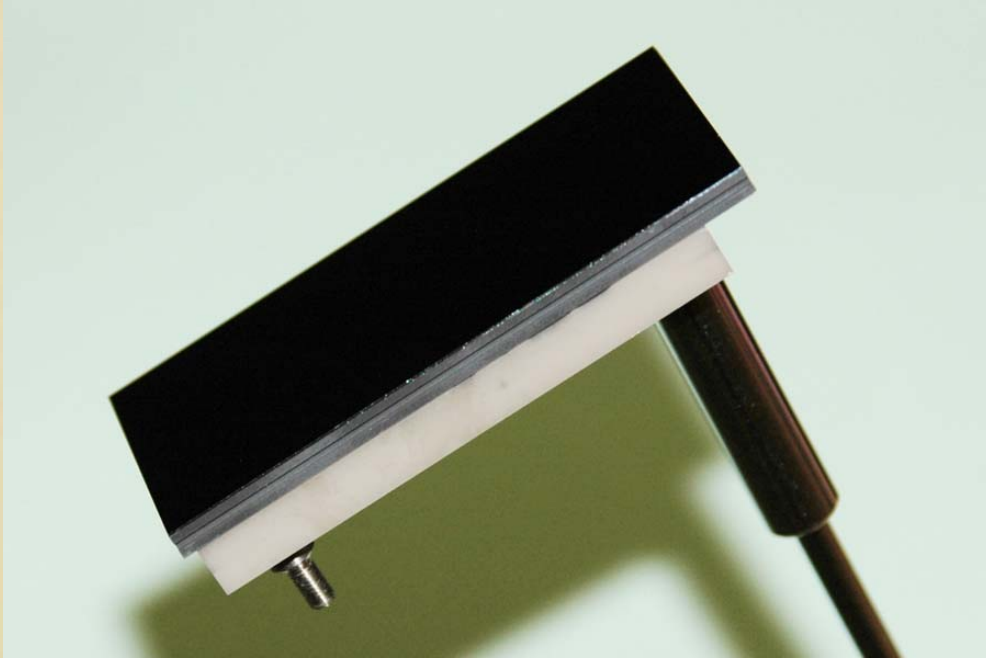
NAOJ
U-Tokyo
KEK
Princeton
ASIAA

Hyper Suprime-Cam

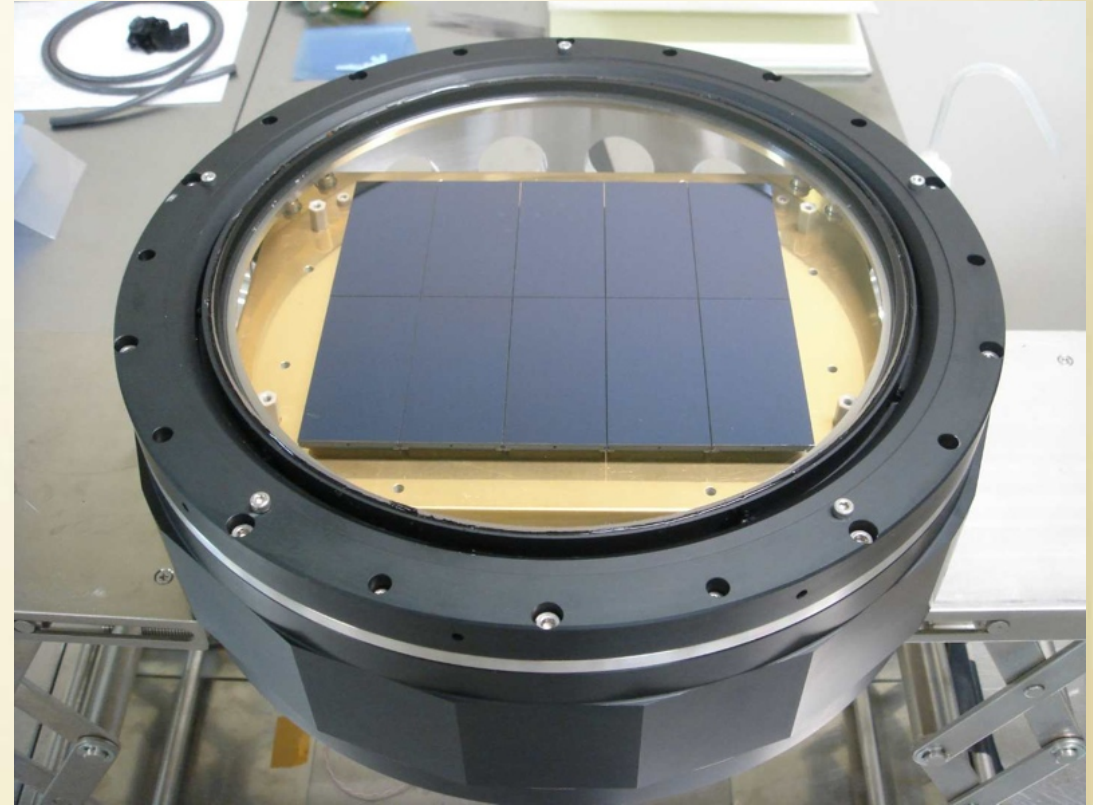
Primary Technical Specifications

Field of View	1.5 degree diameter	Vignetting allowed up to 25 % at the edge
Instrument PSF size	$\leq 0''.3$ for r' , i' $\leq 0''.4$ for g' , Y	Dead area (CCD gap) fraction $\leq 5\%$ FWHM
Pixel scale	$\leq 0''.2$ /pix	
System Throughput	$> 50\%$ for g' $\geq 65\%$ for r' $\geq 65\%$ for i' $\geq 40\%$ for z' $\geq X\%$ for Y	PM \times WFC \times Filter \times CCD at the center of the field
Minimum Shutter Speed	3 sec (1 sec goal)	Time accuracy $\leq \pm 1\%$
Min. interval of Exposures	20 sec (15 sec goal)	Including CCD readout and wipe pointing change

Hamamatsu CCD



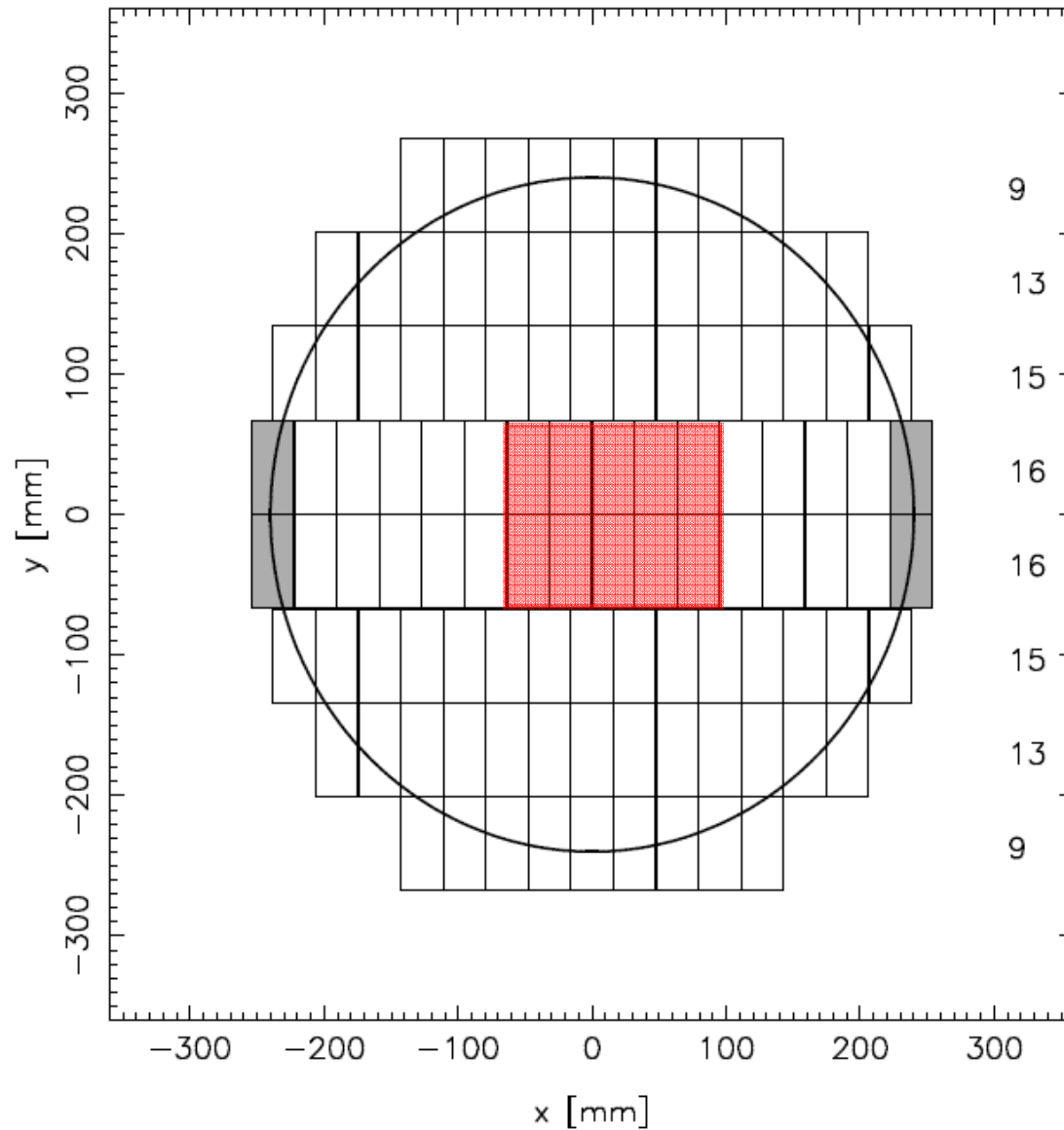
2048 x 4096 15 micron
four side buttable



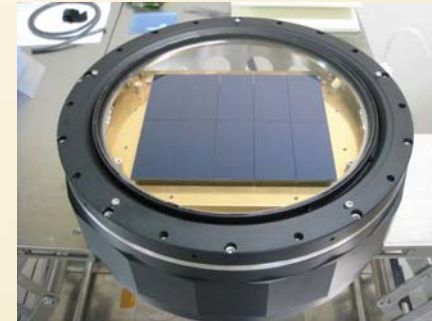
Suprime-Cam CCDs will be
replaced and the commissioning
run is 2008/06

HSC: Focal Plane

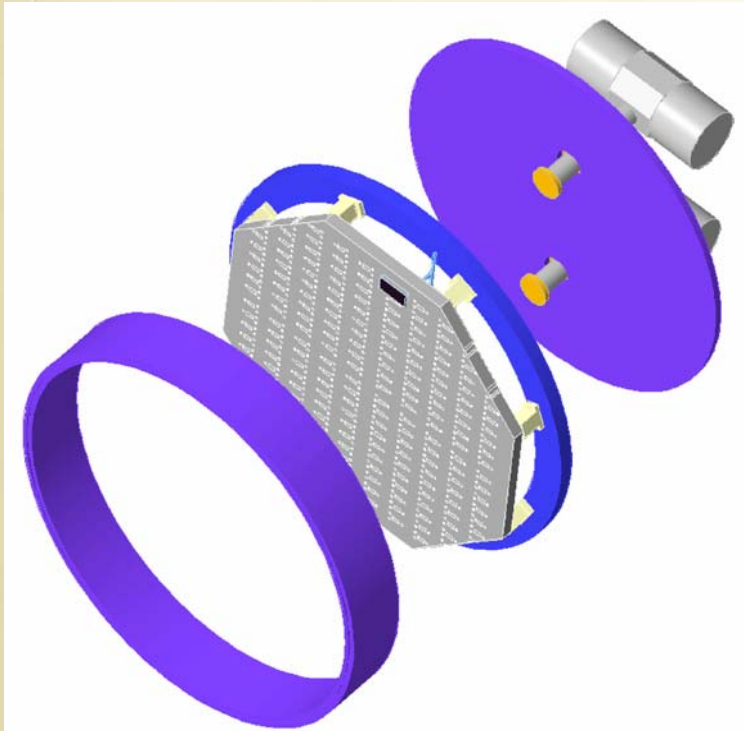
HSC CCD alignment, pattern 2 (106 CCDs)



106 2k4kFDCCD



HSC: Focal Plane



GAIA demo model
77 x 58 x 3.8 cm

$P_{input} \sim 65W$

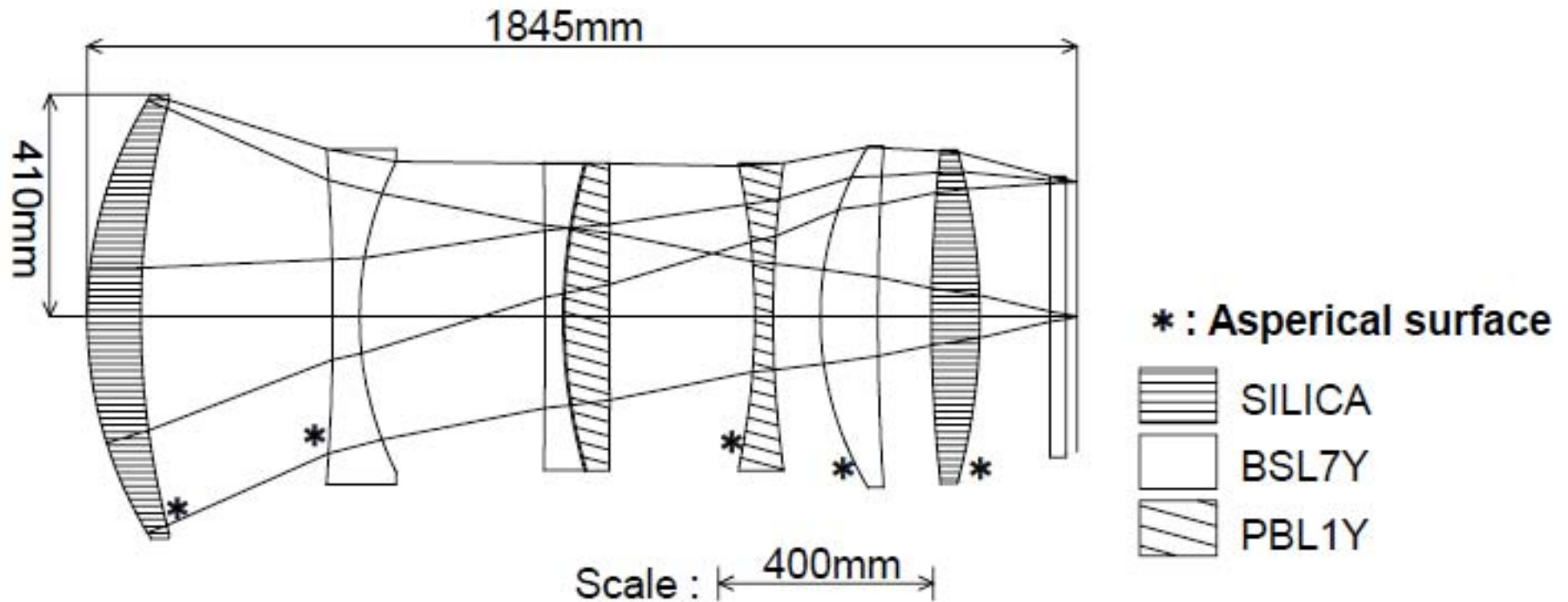
$P_{rad} \sim 50W$

Pulse Tube x 2
Fuji Electric
48 W @ -100C

SiC Focal Plane
CTE: 3.7 ppm
close to AlN

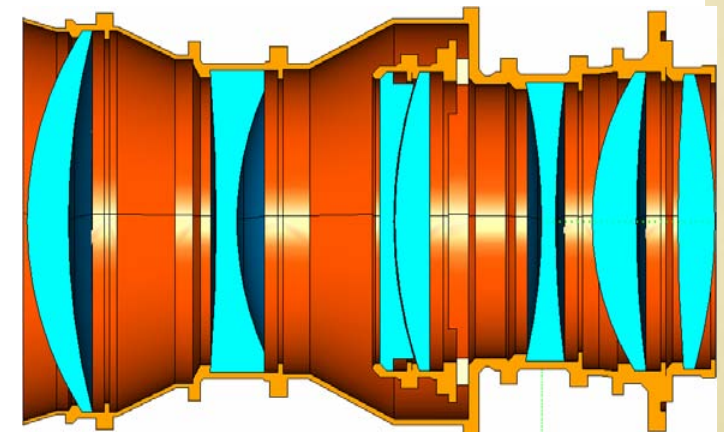
TC: 200 W/mK
YM: high enough⁶

Wide Field Corrector

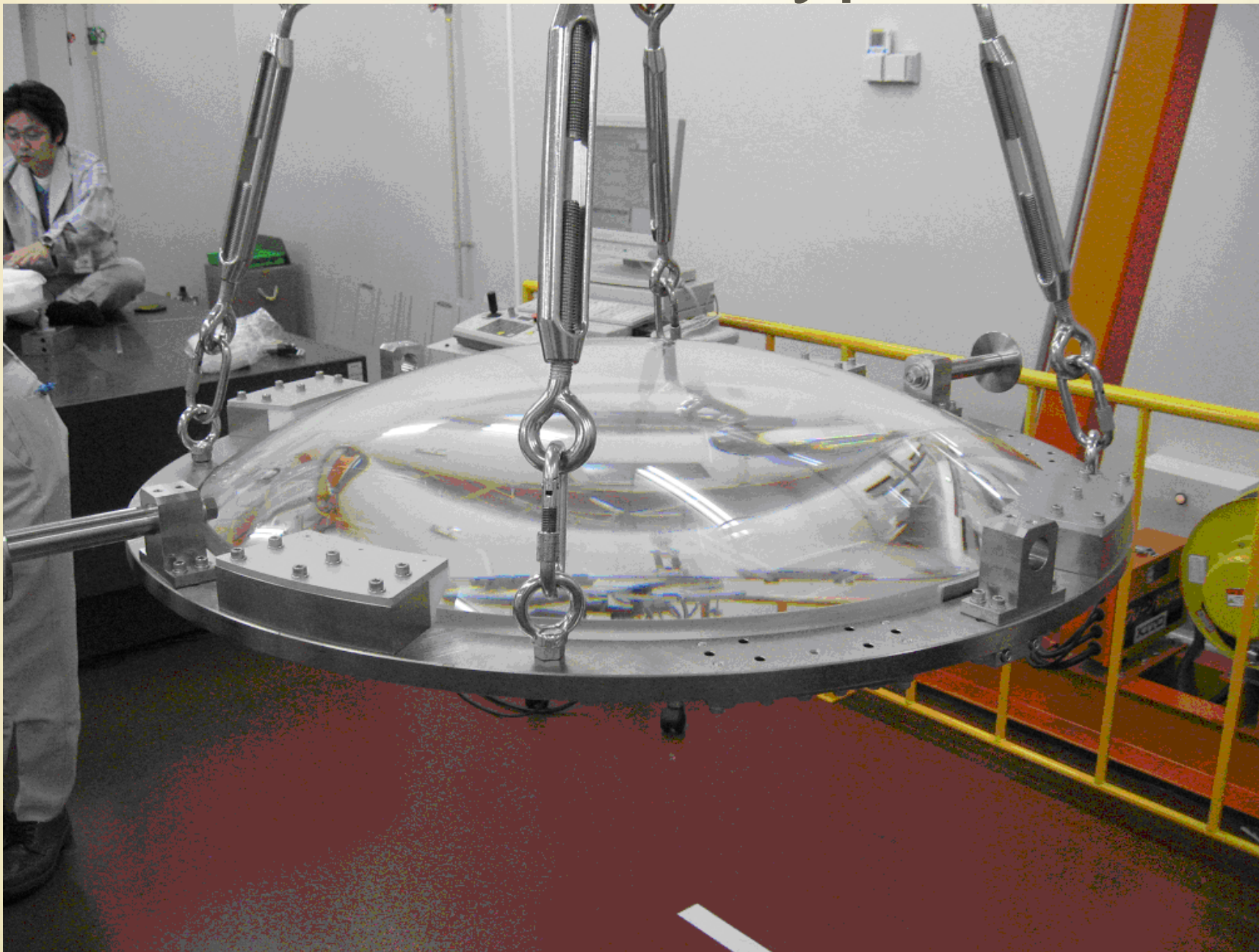


General Lens Data

Focal length	18416[mm]
image scale	0.0893[mm/arcsec]
image size	ϕ 498[mm]



G1 Prototype



Broad band Filter

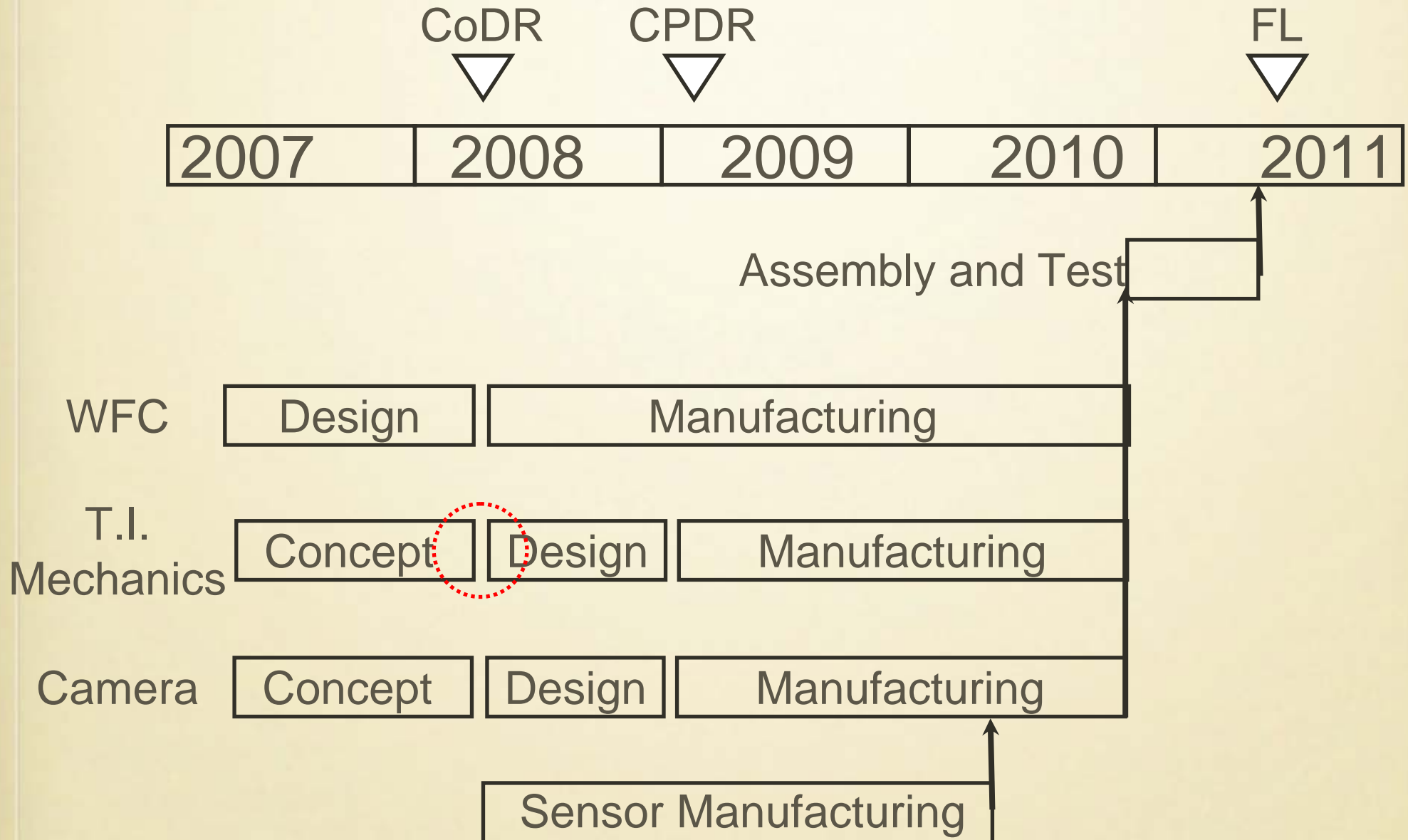
Prototype delivered on 2008/02/29



All the spec met
at high level

Uniformity:
cutoff 3 nm
transmission 2-3 %

HSC Schedule



Summary

- CCD and WFC development is on schedule.
- Conceptual study of HSC mechanics is behind schedule by ~ 6 month because of the significant change of the configuration.
- Prototyping of the filters are underway. Final spec. depends on the result of prototyping.
- Impact assessments are important.