



Hartmann Type Segment Position Sensing

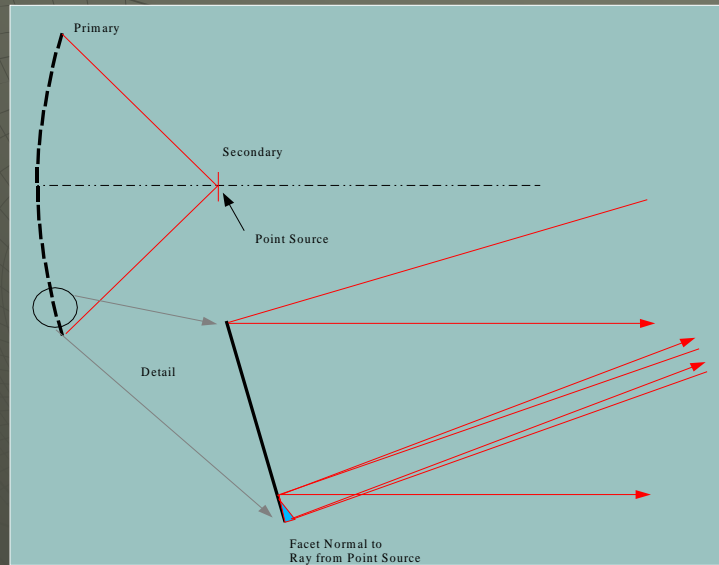
Concept Provided by Alan Wirth
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General Approach



- ◆ Based On Hartmann Type Sensing of Panel Tilt Angles
- ◆ Similar to System Provided to SALT
- ◆ Additional References Available in SPIE Vol 5489, p.892, 2004

General Configuration



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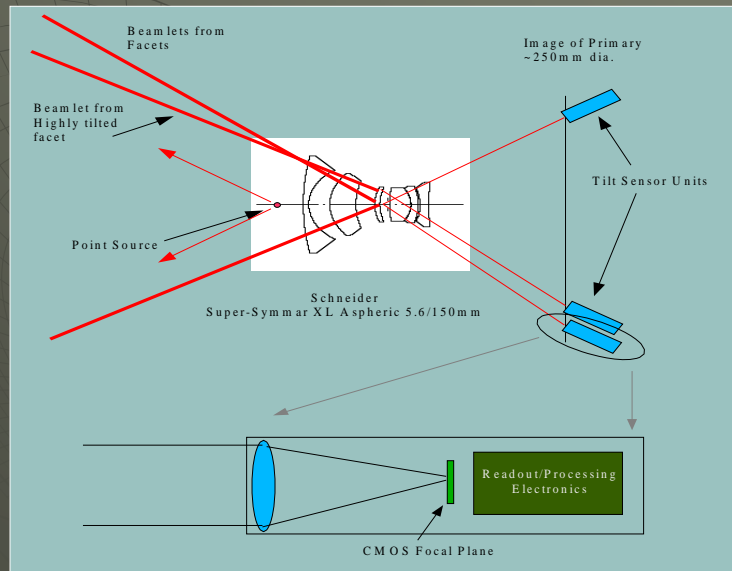
General Precepts



- ◆ Point Source Near or at Center of M2
- ◆ Small “Facet” Mirrors Attached to Segments
- ◆ Facets Aligned to Provide Returns from Point Source to Sensor
- ◆ Facets Adjusted When Panels are Aligned and Then Fixed

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Sensor Configuration Concept



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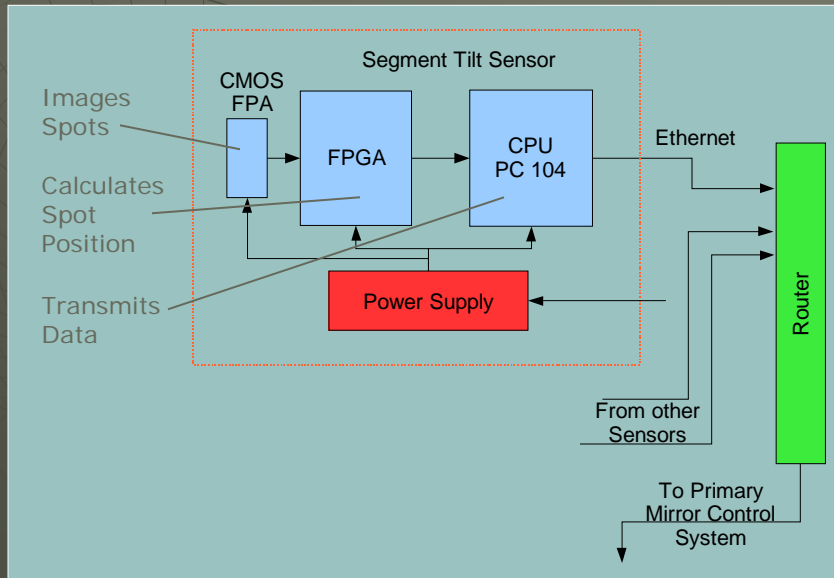
Initial Analysis



- ◆ Tilt Sensitivity: Noise $< 1 \mu\text{rad}$
- ◆ Areal Fill of Facets 1/40,000: High Brightness LED Provides Sufficient Illumination
- ◆ SNR $> 50:1$ for Anticipated Detector Noise & Integration Time

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Detector Electronics



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Summary



- ◆ Relatively Simple and Low Risk
- ◆ Access to Center and Region Behind M2 a Question
 - Standing Wave Issue Needs Consideration
- ◆ Additional Design/Analysis Required
- ◆ Total System Cost ~\$1 Million...Could be an Excellent Value

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