



Advanced Imaging Conference
November 10 - 12
2006

What's New at SBIG

Accessories

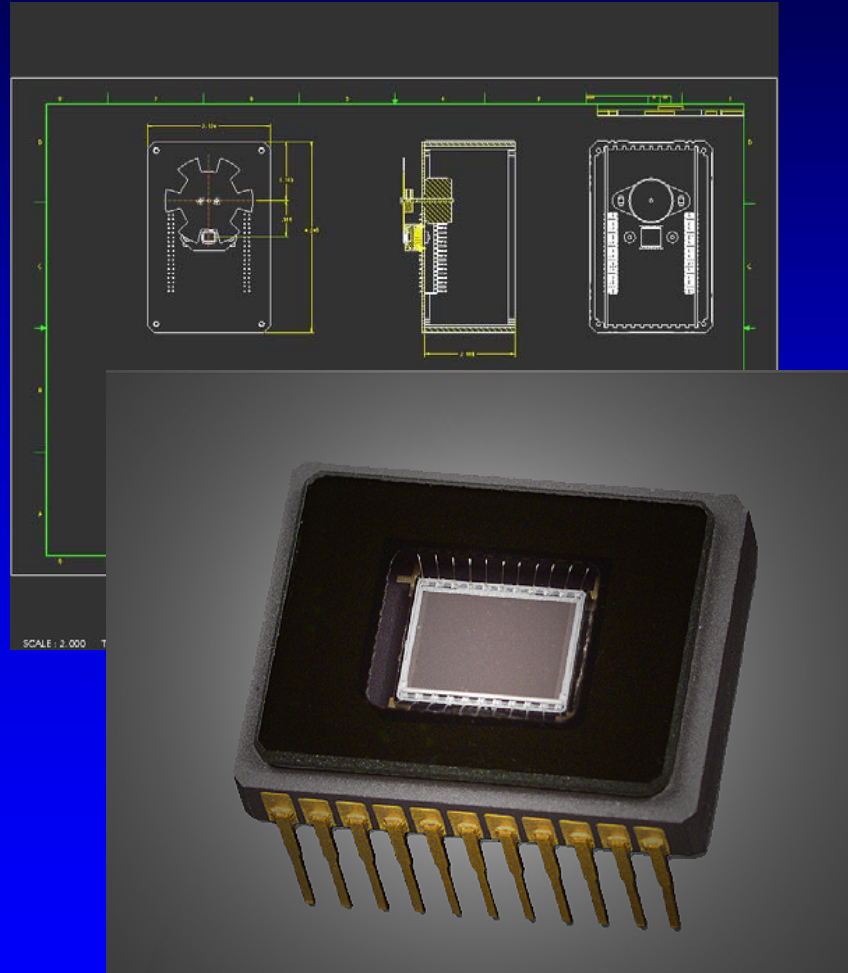
- Autoguider
- Autofocuser
- AO for ST Cameras
- FW8-STL
- CFW-9
- CFW-BVI (ST-402E)

Cameras

- KAI-10100
- KAI-16000
- KAF-9000
- KAF-16803
- CMOS - Not Yet

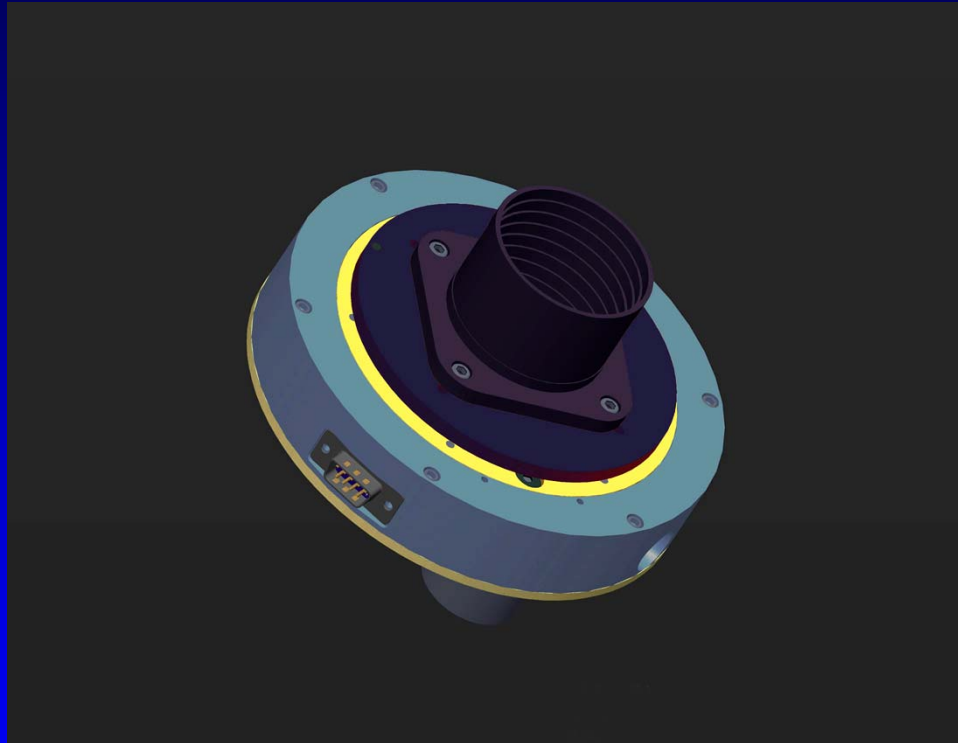
Updated: January 2007

“Smart” Autoguider



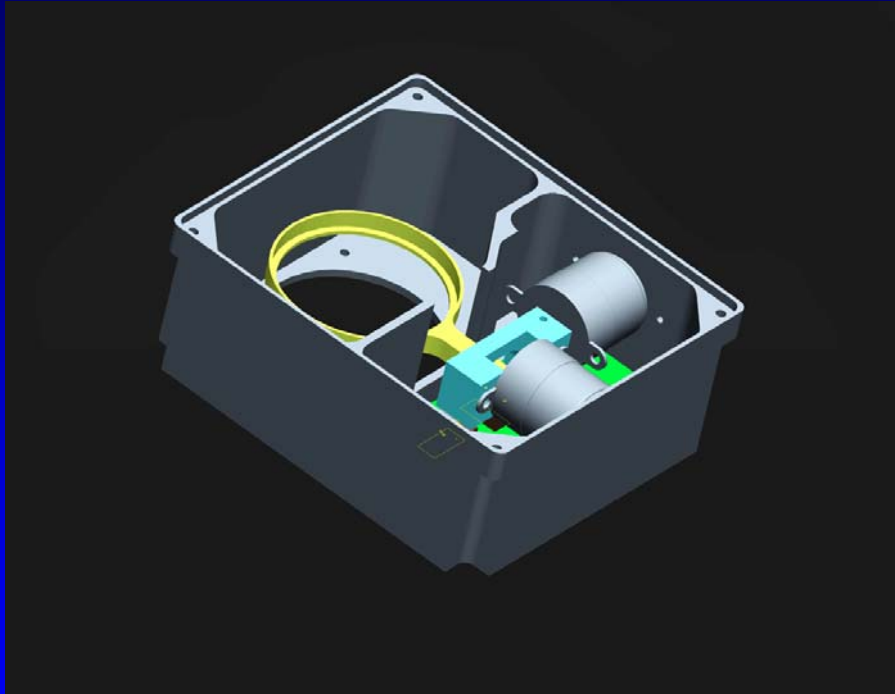
- Stand Alone - no external CPU
- KAI-340 CCD: 640 x 480 9u
- 40% more area than TC-237
- Low read noise (~6 - 7 e-)
- Low dark current (similar to 4020M)
- Single Button Operation
- Mechanical Shutter (dark frames)
- Cooling not needed for short exposures
- USB for configuration
- Target under \$1000
- Estimate release in Fall of 2007

Autofocuser



- For ST Cameras (maybe 402)
- Similar in size to CFW8
- I2C Accessory - no external power or communication cable required.
- Part of integrated system of accessories: CFW, AO, AF
- Target price is around \$600
- Estimate release approx. April 2007

New AO for ST Cameras



- Replacement for AO-7
- Similar to AO-L but smaller for ST self-guiding cameras
- I2 C accessory - no external power or communication cable required. Part of a group of integrated accessories including CFW9 and Autofocuser
- Room for pick-off mirror inside for control by remote guide head
- Target price is under \$600
- Estimate release approx. June 2007

8-Position Filter Wheel for STL Cameras



- 50mm unmounted or 48mm threaded filters
- Replaces STL cover and 5-position internal filter wheel for minimum change in back focus
- Compatible with AO-L
- I2C accessory - no external power or communication cables required
- May be also be operated in stand alone mode with external power supply and RS232 for use with any camera
- OEM version available - slower with high positioning accuracy
- Available now

CFW-9 Filter Wheel for ST Series Cameras

- CFW-9 is direct replacement for CFW8A
- 5-position 1.25" filter carousel
- Size, capacity, price is same as CFW8A
- Uses I2C port - only for USB cameras
- Available now

BVIC Photometric Filter Wheel for ST-402ME

- Drop in filter wheel for ST-402
- B, V, I, Photometric filters plus parfocal clear
- Custom filters mounted on internal carousel
- Available now

New Camera Design

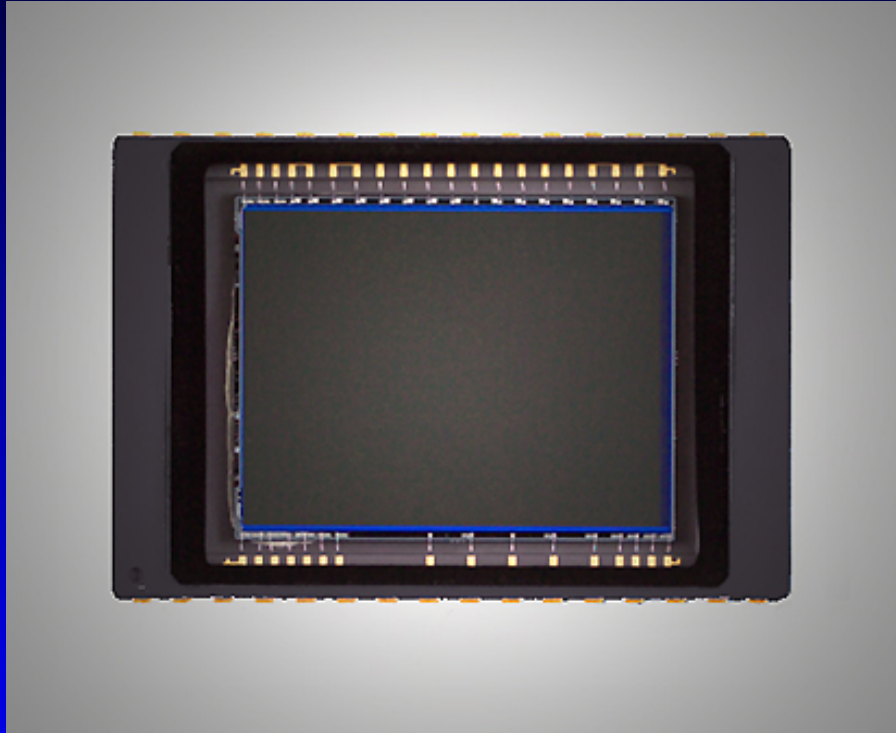
- When STL was designed, the next larger CCD was the 16801 costing around \$10,000 for just the CCD. The 16803 and 9000 chips were not announced until after the STL cameras were already in production for about a year.
- The 16801 was slightly larger than 11000 (about the same size as the 11000 in one dimension) but required a jump in size of filters and filter wheels beyond commonly available 50mm filters.. Impact the overall cost of the camera design and the price of the camera with smaller CCDs.
- For all these reasons we decided not to design the STL camera to take the 16801 CCD. But as a result we were able to bring out the STL-11000 sooner using our existing USB electronics and the camera has been on the market for two years.
- The introduction of the larger CCD by Kodak has changed this and for these CCDs and others, we are designing a new camera to take advantage of the lower cost, larger format chips.

New Camera Design

Some common features of the new camera:

- Ethernet
- USB 2.0
- Internal and External Self-Guiding with KAI-340 (640x480 9u)
- Full Frame Buffer
- New Cooling Design - Air and Liquid
- Mechanical Shutter (and electronic shutter with interline CCDs)
- Variety of CCD choices:
 - KAI-10100M (different body?)
 - KAI-16000M
 - KAF-9000
 - KAF-16803

KAI-10100

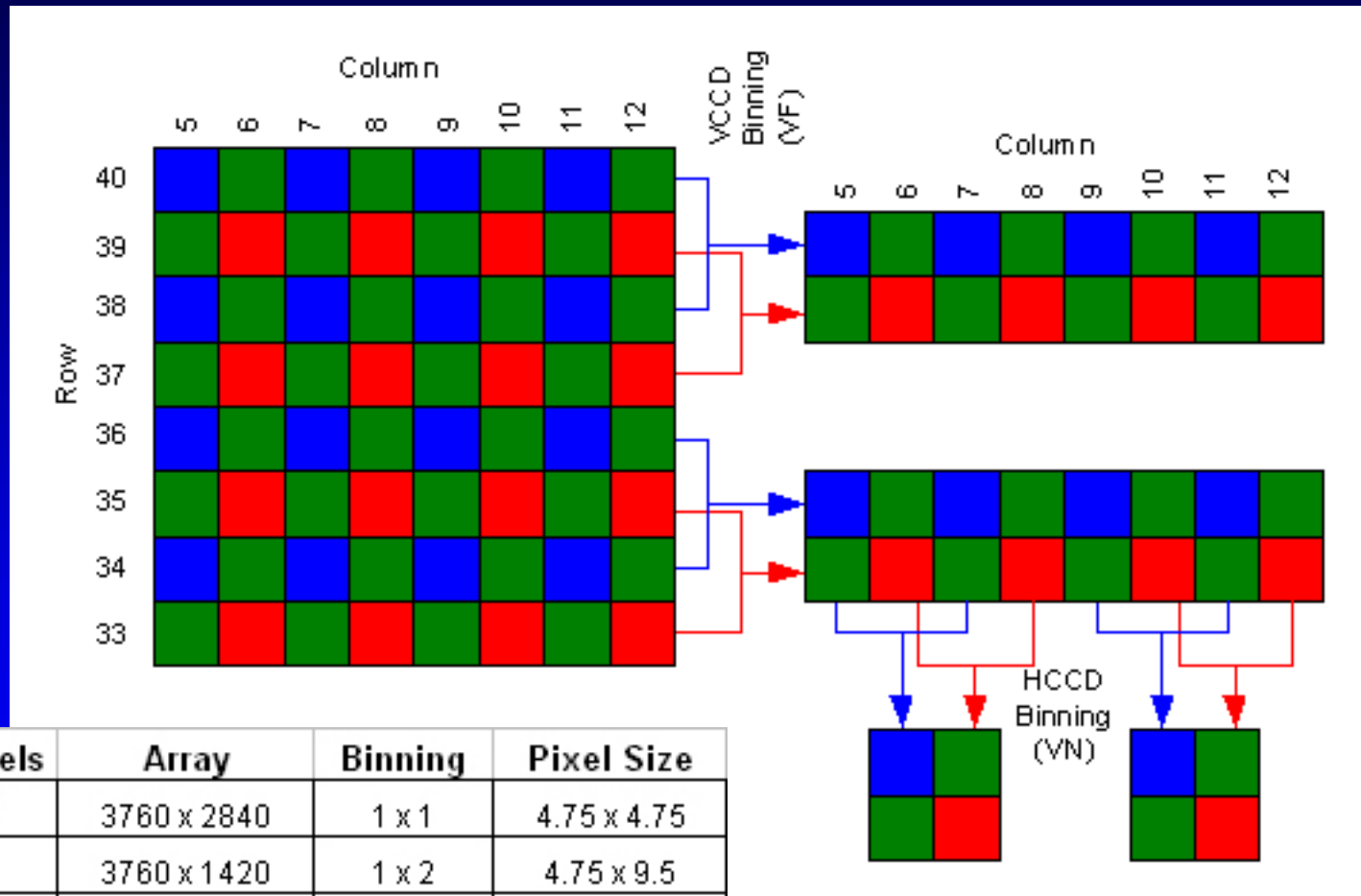


- 10.1 Million Pixels
- 3648 x 2760 @ 4.75 μ
- 50% more area than ST-10
- 45% the area of 6303
- 1000X blooming suppression
- 0.64 arcsec / pixel at 60 inch FL
- Bin 2x2 0.64 arcsec at 120 in. FL
- Unique features: Color binning
- Low Cost. Target \$3000 - \$4000
- Estimated release late 2007

Expected to be the natural step up to a full featured CCD camera for those who are using digital SLR. Competitive price, CCD size, but with internal and external self-guiding, USB 2.0, Ethernet capable, full frame buffer, air and water cooling, low read noise, mechanical shutter, etc.

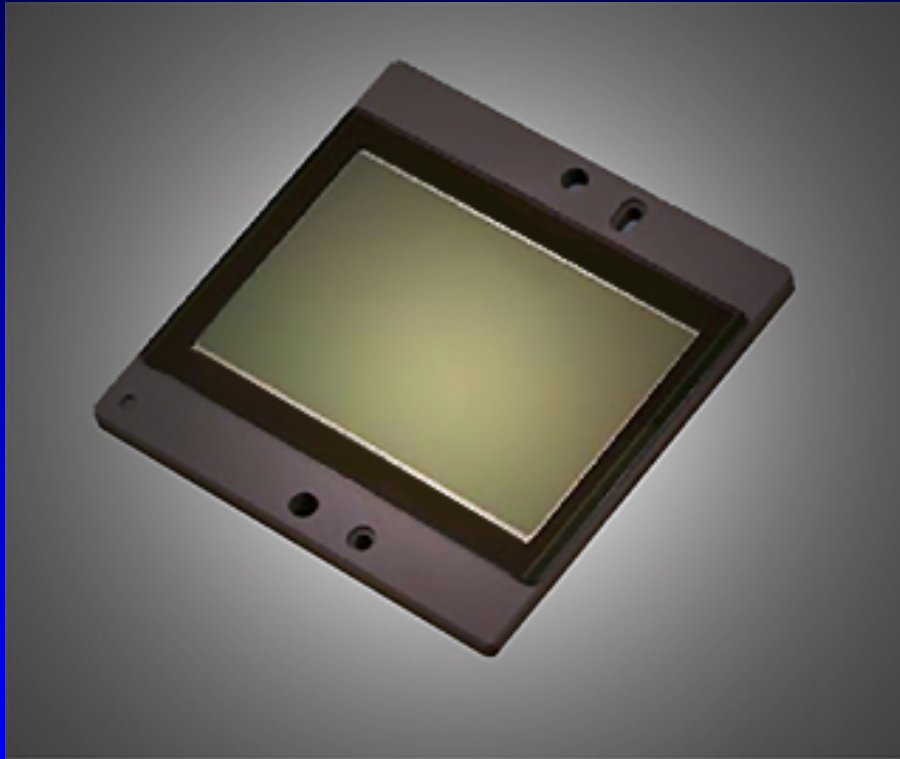
KAI-10100

Unlike previous Kodak interline color CCDs this one can bin 1x2, 2x2, 4x4 and retain color data



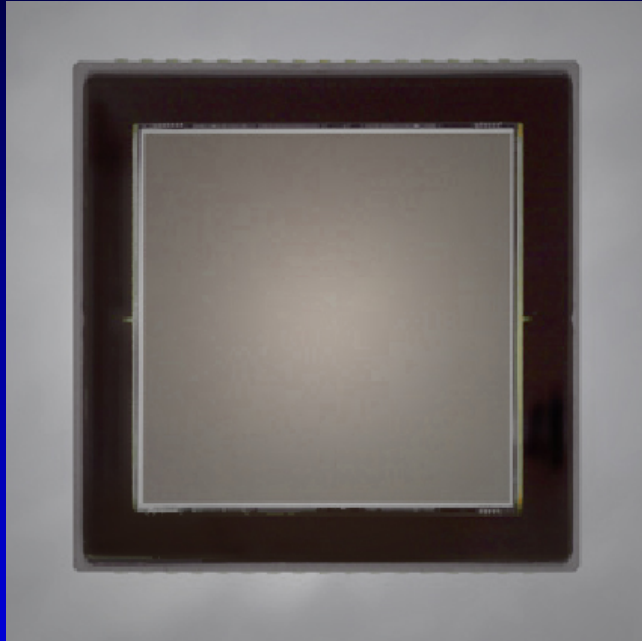
Megapixels	Array	Binning	Pixel Size
10.68	3760 x 2840	1 x 1	4.75 x 4.75
5.34	3760 x 1420	1 x 2	4.75 x 9.5
2.67	1880 x 1420	2 x 2	9.5 x 9.5
0.67	940 x 710	4 x 4	19 x 19

KAI-16000



- 16 Megapixel
- 4872 x 3248 at 7.4u
- Same CCD size as 11000 with smaller pixels, good for wide field refractors
- Like cross between 4020 and 11000. Low read noise and pixel size of 4020, same FOV as 11000
- Cost will be more than 11000, similar to 9000
- High Resolution, 16 Megs, and still does not require larger than standard 50mm filters and filter wheels
- Estimated release to be determined (following 10100 camera)

KAF-16803 and KAF-0900



- KAF- 16803 and KAF-0900 are same size.
- KAF-16803 4096 x 4096 at 9u.
- KAF-09000: 3056 x 3056 at 12u.
- Requires larger filters / filter wheels than 2”
- Demands good off-axis optical quality
- Made for Digital Radiography market
- Target price TBD (competitively priced)
- Estimated release TDB (following 10100 camera)

CMOS

- We have looked at CMOS for autoguiders and inexpensive imaging cameras, but have not yet found one we like more than the Kodak interline CCDs such as the 340. (*Jan 2007: We are testing some now for future consideration in low cost guiders/guide heads*)