

Zeiss AxioCam & AxioCam IC Comparison

		High End, High Performance						Entry Level			
Camera		HRc R3		MRc 5 R1		MRc R3		ICc 3		ICc 1	
Sensor		Sony ICX 285		Sony ICX 282		Sony ICX 285		Sony ICX 262 AQ		Sony ICX 267	
Sensor Size		2/3"		2/3"		2/3"		1/1.8"		1/2"	
CCD Resolution		1.4 MP		5 MP		1.4 MP		3.3 MP		1.4 MP	
Camera Resolution		13 MP		5 MP		1.4 MP		3.3 MP		1.4 MP	
		4164 x 3120		2584 x 1936		1388 x 1030		2080 x 1540		1392 x 1040	
Pixel Size		6.45 µm		3.4 µm		6.45 µm		3.45 µm		4.65 µm	
Binning Resolution	1 x 1	1388 x 1040		2584 x 1936		1388 x 1040		2080 x 1540		1392 x 1040	
	2 x 2	694 x 520		1292 x 968		694 x 520		N/A		N/A	
	3 x 3	462 x 346		861 x 645		462 x 346					
	4 x 4	346 x 260		646 x 484		346 x 260					
	5 x 5	276 x 208		516 x 387		276 x 208					
	6 x 6	N/A		430 x 322		N/A					
	8 x 8			323 x 242							
	10 x 10			258 x 193							
Live Image Frame Rate & Resolution	Slow	12 img/s	1388 x 1040	3 img/s	1296 x 968	13 img/s	1388 x 1040	6 img/s	2080 x 1540	17 img/s	1392 x 1038
	Med.	26 img/s	460 x 344	11 img/s	430 x 322	26 img/s	460 x 344	10 img/s	1280 x 960	28 img/s	768 x 520
	Fast	33 img/s	276 x 208	16 img/s	258 x 193	38 img/s	276 x 208	15 img/s	780 x 520	30 img/s	600 x 480
		39 img/s	344 x 254								
Max. Image File Size, Color		78 MB @ 4164 x 3100, 3x14-bit		28.63 MB @ 2584 x 1936, 3x12-bit		8.26 MB @ 1388 x 1040, 3x12-bit		18.33 MB @ 2080 x 1540, 3x12-bit		4.3 MB @ 1392 x 1038, 3x8-bit	
Max. Image File Size, B&W				2.39 MB @ 1292 x 968		2.75 MB @ 1388 x 1040		6.11 MB @ 2080 x 1540		1.3 MB @ 1392 x 1038	
Dynamic Range		1:2200 @ 25 MHz		1:1300		Higher than 1:2200		1:350		1:280	
		1:2500 @ 12.5 MHz									
Interface		IEEE 1394a (FireWire)		IEEE 1394a (FireWire)		IEEE 1394a (FireWire)		IEEE 1394a (FireWire)		IEEE 1394a (FireWire)	
Peltier Cooling		Yes		Yes		Yes		No		No	
Exposure Time		400 µs - 600 s		250 µs - 60 s		400 µs - 60 s		1 ms to 4 s		1 ms to 4 s	
Digitization		3x12-bit @ 25 MHz		3x12-bit		3x12-bit		3x8-bit		3x8-bit	
		3x14-bit @ 12.5 MHz						3x12-bit			
Spectral Range		400 - 700 nm		400 - 710 nm		400 - 700 nm		400 - 700 nm		400 - 700 nm	
Readout Speed		25 MHz, 12.5 MHz		12 MHz		24.57 MHz					

Note: USB vs. Firewire

Although high-speed USB 2.0 nominally runs at a higher signaling rate (480 Mbit/s) than FireWire 400 (400 Mbit/s), typical USB PC-hosts rarely exceed sustained transfers of 280 Mbit/s, with 240 Mbit/s being more typical. This is likely due to USB's reliance on the host-processor to manage low-level USB protocol, whereas FireWire delegates the same tasks to the interface hardware. For example, the FireWire host interface supports memory-mapped devices, which allows high-level protocols to run without loading the host CPU with interrupts and buffer-copy operations. So, Firewire has higher **actual** data transfer rates than USB 2.0 when implemented.