

IROD Component Area, Cost and Power Estimate

Scenarios

Name	DPU's	Comps	Comp Cost	Power W	Chip Area sq. mm	% of 9U Area
CSC ROD	12	122	\$3,199	61	48306	33%
SCT96	12	122	\$3,199	61	48306	33%

9U VME Area (367x400, single side): 146800

Scenario notes:

The SCT96 scenario is provided for comparison with earlier cost estimates.

Comp = Component = chips + passives + connectors (does not include printed circuit boards, assembly, etc.)

Notes for detailed tables below:

FIFO chips are 16k x 36.

DPRAM chip is 16k x 36.

Subsystem names are in italics.

Chip costs are approximate 2001 single-piece costs. Subtract 10%-20% to get 2001 bulk cost.

DSP chip cost includes TI's university discount.

FPGA power is difficult to estimate. 1W is assumed.

The ROL is assumed to be on the transition module and is therefore not included in the estimate.

This estimate is based on the block diagram:

<http://positron.ps.uci.edu/~pier/csc/IRODBlockDiagram9.pdf>

Per-DSP-Module Details (= Per-GPU Details)

Description	Part no.	qty	cost each	area each	pwr each	cost total	pwr total	area total
DSP	TMS320C6203CGNZ300	1	\$76	740	1.50	\$76	1.50	740
FPGA	XC2S150-5FG256C	2	\$27	289	1.00	\$54	2.00	578
SDRAM 2M x 32	MT48LC2M32B2-7	1	\$9	270	0.15	\$9	0.15	270
Connector (module)	84502-101	1	\$12	0	0.00	\$12	0.00	0
Connector (motherboard)	84500-102	1	\$10	0	0.00	\$10	0.00	0
misc. res/cap/etc.	several	1	\$10	0	0.00	\$10	0.00	0
Total Per-Module		7			2.65	\$170	3.65	1588

Per-ROD Details

Description	Part no.	qty	cost each	area each	pwr each	cost total	pwr total	area total
<i>Data Exchange</i>								
Front FPGA's (DXF)	XC2S150-5PQ208C	2	\$22	936	1.00	\$44	2.00	1873
Back FPGA (DXB)	XC2S150-5PQ208C	1	\$22	936	1.00	\$22	1.00	936
Host FIFO	IDT72V3680L15PF	1	\$80	352	0.17	\$80	0.17	352
<i>Host</i>								
DSP Module	N/A	1	\$170	1588	3.65	\$170	3.65	1588
Host CPLD	XC9572XL-5TQ100C	1	\$8	256	0.13	\$8	0.13	256
Flash memory	TBD	1	\$10	270	0.03	\$10	0.03	270
transceivers	SN74LVT16245ADL	5	\$3	171	0.03	\$13	0.17	856
<i>VME interface</i>								
transceivers	TBD	6	\$3	171	0.03	\$15	0.20	1027
VMEC, VMED CPLD's	XC95288XL-7TQ144C	2	\$24	256	0.13	\$48	0.26	512
Flash CPLD	XC9572XL-5TQ100C	1	\$8	256	0.13	\$8	0.13	256
Flash memory	TBD	1	\$10	270	0.03	\$10	0.03	270
VME FIFO	IDT72V3680L15PF	1	\$80	352	0.17	\$80	0.17	352
VME DPRAM	CY7C056V20AC	1	\$77	400	0.64	\$77	0.64	400
<i>DPU Control</i>								
DC FPGA	XC2S150-5PQ208C	1	\$22	936	1.00	\$22	1.00	936
<i>Power</i>								
DC-to-DC converter	PT7705C	2	\$51	3145	0.00	\$101	0.00	6290
P3V sequencing	several	1	\$60	250	0.00	\$60	0.00	250
<i>Interconnect</i>								
TTC FPGA	XC2S150-5PQ208C	1	\$22	936	1.00	\$22	1.00	936
BPI FPGA	XC2S150-5PQ208C	6	\$22	936	1.00	\$132	6.00	5618
<i>Clock Generation</i>								
see block diagram	several	1	\$144	1500	0.25	\$144	0.25	1500
backplane connectors	TBD	1	\$48	4771	0.00	\$48	0.00	4771
misc. res/cap/etc.	several	1	\$50	0	0.00	\$50	0.00	0
		38			10.40	\$1,162	16.83	29,250