

BASE CCD CONTROLLER -- LIST OF SELECTED COMPONENTS

Preamp / Header PCB								
Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
2	15	30	1PT100KN815	Platinum temp sensor	Omega	---		-200C
2	0.5	1	RN60D-F-20	Heater resistor, 20ohm, 0.25W	Vishay/Dale	---		250mW
2	4	8	AD829AR	Low-noise op-amp	Analog Devices	SO-G8	-40 to +85	36V
2	3	6	SST404	Dual n-channel JFET	Siliconix	SO-G8	-55 to +150	40V
2	3	6	SST211	DMOS FET	Siliconix	SOT-143	-55 to +125	30V
1	4	4	OP295GS	Dual op-amp	Analog Devices	SO-G8	-40 to +85	36V
2	7	14	INA128U	Instrumentation amp	TI	SO-G8	-40 to +85	36V
2	8	16	LT1460HCS3-2.5	Voltage reference (+2.500V)	Linear Tech	SOT-23	-40 to +85	30V
6	0.5	3	4606-X-101-473	Resistor network, 47K	Vishay/Bournes	SIP-6	-55 to +125	750mW
70	0.1	7	CRCW1206 series	Resistor, thick film, 1%	Vishay/Dale	C3216-1206	-55 to +125	125mW
2	1	2	KC1850-410-06-4	Cap, polycarbonate film, 10 nF	Roederstein	RAD-0.2	-55 to +100	63V
2	1	2	MKC1858-410-065	Cap, polycarbonate film, 100 nF	Roederstein	RAD-0.2	-55 to +100	63V
30	0.1	3	VJ0805Y series	Cap, ceramic, X7R, 50V, 10%	Vishay	CC2012-0805	-55 to +125	50V
2	0.5	1	VJ0805A030KXAA	Cap, NPO, 50V, 3pF	Vishay	CC2012-0805	-55 to +125	50V
2	0.5	1	VJ0805A120KXAA	Cap, NPO, 50V, 12pF	Vishay	CC2012-0805	-55 to +125	50V
0	0.5	0	C0805C4743RAC	Cap, X7R, 25V, 470nF	Kemet	CC2012-0805	-55 to +125	25V
0	0.5	0	VJ1206Y394KXAA	Cap, X7R, 50V, 390nF	Vishay	CC3216-1206	-55 to +125	50V
0	0.5	0	C1206C475K3PAC	Cap, X5R, 25V, 4.7uF	Kemet	CC3216-1206	-55 to +125	25V
2	0.5	1	VJ1210Y474KXAA	Cap, X7R, 50V, 470nF	Vishay	CC3225-1210	-55 to +125	50V
16	0.5	8	GRM235Y5V475Z050	Cap, Y5V, 50V, 4.7uF	Murata	CC3225-1210	-20 to +80	50V
6	0.5	3	593D156X9020B2	Cap, tantalum, 15uF, 20V	Vishay/Sprague	CC3528-B	-55 to +85	20V
2	0.5	1	593D336X9020D2	Cap, tantalum, 33uF, 20V	Vishay/Sprague	CC7343-D	-55 to +85	10V
2	0.5	1	2508055007Y0	Ferrite bead, medium current	Fair-rite	C2012-0805	-55 to +125	300mA
2	0.5	1	NLC322522T-100K	Inductor, 10uH	TDK	C3225-1210	-20 to +100	300mA
10	1	10	TMS series	MicroHeader, 0.050 spacing	Samtec	MHDR	-65 to +125	---
2	40	80	M83513/04-F05N	micro-D 37-pin socket	Microdot	MD37S	-55 to +125	---
1	120	120	SS910004-20B-35P-4	Hermetic 79-pin connector	Hermetic Seal	DWR79		---
1	35	35	MS27473T-20B-35S	MIL-D38999 connector	Amphenol	---	-65 to +175	---
1	8	8	M85049/49-2-20W	Straight backshell	Amphenol	---		---
1	10	10	MISC	Misc components	---	---		---
1	250	250	BLANK	Blank rigid-flex PCB	XZX Electronics	---		---
		632	Subtotal					

Preamp to CCD cable								
Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
1	35	35	M83513/01-F05N	micro-D 37-pin plug, solder cup	Microdot	---		---
1	35	35	M83513/02-F05N	micro-D 37-pin socket, solder cup	Microdot	---		---
1	200	200	BLANK	Blank flex cable	XZX Electronics	---		---
		270	Subtotal					

DSP Timing PCB								
Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
1	25	25	XC56303PV100	Motorola 100MHZ 24-bit DSP	Motorola	TQFP20X20-G144/	-40 to +100	100MHz
1	65	65	EPM7256AETC144-6	EPLD Programmable logic	Altera	TQFP20X20-G144/	0 to +70	4.6V
3	22	66	CY7C1049V33-15VC	SRAM 512K x 8	Cypress	SO-J36	0 to +70	4.6V
1	20	20	AT28LV64-20JI	Parallel EEPROM 8Kx8	Atmel	QCC-J32	-55 to +125	7V
1	20	20	SY87700LH1	Clock recovery	Micrel	TQFP7X7-G32/N	-40 to +85	7V
1	2	2	PS9711-ND	Optoisolator	NEC	SOP-5	-40 to +85	30mA
1	8	8	LTC1518CS	Quad RS-485 line receiver	Linear Tech	SO-G16	0 to +70	10V
1	8	8	LTC1688CS	Quad RS-485 line driver	Linear Tech	SO-G16	0 to +70	7V
1	2	2	MAX811SEUS-T	uP voltage monitor	Maxim	SOT-143	-40 to +85	6.0V
3	1	3	F74ACT377MTC	Octal D-type flip-flop	Fairchild	TSOP-G20	-40 to +85	7V
1	10	10	EC2620ETTTs-10.000M	Crystal oscillator [10.000 MHz]	Ecliptek	SMT4	-40 to +85	---
1	3	3	LM3940IT-3.3	Voltage regulator	National	TO-220H	-40 to +125	1000mA
1	2	2	MAX3189EEUT-T	Dual RS-232 transceiver	Maxim	SOT23-6	-40 to +85	7V
1	75	75	HFBR-5905	Optical transceiver	HP	HFBR	0 to +70	---
1	10	10	MC100EPT22D	Dual TTL-LVPECL translator	Motorola	SO-G8	-40 to +85	6V
1	10	10	MC100EPT23D	Dual LVPECL-TTL translator	Motorola	SO-G8	-40 to +85	6V
50	0.1	5	CRCW1206 series	Resistor, thick film, 1%	Vishay/Dale	C3216-1206	-55 to +125	125mW
25	0.1	2.5	VJ0805Y series	Cap, ceramic, X7R, 50V, 10%	Vishay	CC2012-0805	-55 to +125	50V
1	1	1	VJ0805A562KXAA	Cap, NPO, 50V, 5600pF	Vishay	CC2012-0805	-55 to +125	50V
3	1	3	VJ1210Y474KXAA	Cap, X7R, 50V, 470 nF	Vishay	CC3225-1210	-55 to +125	50V
6	0.5	3	293D335X9020B2	Cap, tantalum, 20V, 3.3uF	Vishay	CC3528-B	-55 to +85	20V
1	1	1	593D336X9020D2	Cap, tantalum, 20V, 33uF	Vishay/Sprague	CC7343-D	-55 to +85	20V
1	1	1	R622LY-100K	Inductor -- 10 uH	TOKO	RAD-0.2L	-20 to +80	3000mA
3	0.5	1.5	2743019446	Ferrite bead, high current	Fair-rite	C3528	-55 to +125	2000mA
6	0.5	3	2508055007Y0	Ferrite bead, medium current	Fair-rite	C2012-0805	-55 to +125	300mA
3	1	3	TSW series	Header 0.1" pins	Samtec	HDR	-65 to +125	---
1	3	3	HD-DA15S-RAPC-1	DB15HD connector	SPC	HD15		---
1	5	5	65906-5	DIN 120-pin plug, RA	AMP	DIN120RA	-55 to +125	---
1	1	1	PLCC32-T-A	PLCC socket 32-pin	Samtec	QCC-J32		---
1	10	10	MISC	Misc components	---	---		---
1	50	50	BLANK	Blank PCB	Prime Tech	---		---
		422	Subtotal					

Signal Processing PCB -- Gen II								
Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
2	55	110	AD7671AST	ADC single 16-bit 1 MSPS	Analog Devices	TQFP7X7-G48/N	-25 to +85	1MSPS
2	3	6	DG612DY	Quad SPST analog switch	Siliconix	SO-G16	-40 to +85	21V
2	4	8	LT1361CS8	Dual 50MHz op-amp	Linear Technology	SO-G8	-40 to +85	36V
4	5	20	AD825AR	Fast settling 80ns JFET op-amp	Analog Devices	SO-G8	-40 to +85	36V
2	45	90	MAX547ACMH	Octal 13-bit DAC	Maxim	QFP10X10-G44/N	0 to +70	6V
8	4	32	OP295GS	Dual op-amp	Analog Devices	SO-G8	-40 to +125	36V
1	10	10	MAX6341ESA	Voltage reference	Maxim	SO-G8	-40 to +85	40V
1	10	10	MAX6325ESA	Voltage reference	Maxim	SO-G8	-40 to +85	40V
1	2	2	LM317EMP	Voltage regulator	National Semi	SOT-223	-40 to +125	40V
1	2	2	LM337IMP	Voltage regulator	National Semi	SOT-223	-40 to +125	40V
1	1	1	74ACT139	Decoder 3-to-8 line	Fairchild	SO-G16	-40 to +85	7V
2	1	2	74ACT245	Octal bus transceiver	Fairchild	SO-G20	-40 to +85	7V
110	0.1	11	CRCW1206 series	Resistor, thick film, 1%	Vishay/Dale	C3216-1206	-55 to +125	125mW
12	7	84	TNPW12062001B	Precision 2K resistor, 0.01%	Vishay/Dale	C3216-1206	-55 to +125	125mW
2	1	2	23PW156	Cap, polystyrene, 560pF	Xicon/Mouser	RAD-0.2	-40 to +85	50V
40	0.1	4	VJ0805Y series	Cap, ceramic, X7R, 50V, 10%	Vishay	CC2012-0805	-55 to +125	50V
2	0.5	1	VJ0805A220KXAA	Cap, NPO, 50V, 22pF	Vishay	CC2012-0805	-55 to +125	50V
2	0.5	1	VJ0805A470KXAA	Cap, NPO, 50V, 47pF	Vishay	CC2012-0805	-55 to +125	50V
6	0.5	3	C0805C4743RAC	Cap, X7R, 25V, 470nF	Kemet	CC2012-0805	-55 to +125	25V
2	0.5	1	VJ1206Y394KXAA	Cap,X7R, 50V, 390nF	Vishay	CC3216-1206	-55 to +125	50V
28	0.5	14	C1206C475K3PAC	Cap, X5R, 25V, 4.7uF	Kemet	CC3216-1206	-55 to +125	25V
9	0.5	4.5	293D335X9020B2	Cap, tantalum, 20V, 3.3uF	Vishay	CC3528-B	-55 to +85	20V
0	1	0	593D156X9020B2	Cap, tantalum, 20V, 15uF	Vishay	CC3528-B	-55 to +85	20V
6	0.5	3	NLC322522T-100K	Inductor, 10uH	TDK	C3225-1210	-20 to +100	300mA
5	0.5	2.5	2743019446	Ferrite bead, high current	Fair-rite	C3528	-55 to +125	2000mA
4	0.5	2	2508055007Y0	Ferrite bead, medium current	Fair-rite	C2012-0805	-55 to +125	300mA

1	5	5	65906-5	DIN 120-pin plug, RA	AMP	DIN120RA	-55 to +125	---
1	10	10	MISC	Misc components	---	---	---	---
1	50	50	BLANK	Blank PCB	Prime Tech	---	---	---
		491	Subtotal					

Clock Driver PCB

Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
4	45	180	MAX547ACMH	Octal 13-bit DAC	Maxim	QFP10X10-G44/N	0 to +70	6V
10	4	40	DG613DY	Dual SPDT analog switch	Siliconix	SO-G16	-40 to +85	21V
10	3	30	LM6172IM	Dual 100MHz op-amp	National Semi	SO-G8	-40 to +85	36V
8	1	8	PXT4401	NPN transistor	Philips	SOT-89R	-65 to +150	600mA
8	1	8	PXT4403	PNP transistor	Philips	SOT-89R	-65 to +150	600mA
1	10	10	MAX6341ESA	Voltage reference	Maxim	SO-G8	-40 to +85	40V
1	1	1	MC74ACT138D	Decode 3-to-8 line	Motorola	SO-G16	-40 to +85	7V
1	1	1	MC74ACT245DW	Octal bus transceiver	Motorola	SO-G20	-40 to +85	7V
140	0.1	14	CRCW1206 series	Resistor, thick film, 1%	Vishay/Dale	C3216-1206	-55 to +125	125mW
90	0.1	9	VJ0805Y series	Cap, ceramic, X7R, 50V, 10%	Vishay	CC2012-0805	-55 to +125	50V
1	0.5	0.5	C0805C4743RAC	Cap, X7R, 25V, 470nF	Kemet	CC2012-0805	-55 to +125	25V
0	0.5	0	GRM235Y5V475Z050	Cap, Y5V, 50V, 4.7uF	Murata	CC3225-1210	-20 to +80	50V
8	0.5	4	C1206C475K3PAC	Cap, X5R, 25V, 4.7uF	Kemet	CC3216-1206	-55 to +125	25V
10	0.5	5	293D335X9020B2	Cap, tantalum, 20V, 3.3uF	Vishay	CC3528-B	-55 to +85	20V
5	0.5	2.5	NLC322522T-100K	Inductor, 10uH	TDK	C3225-1210	-20 to +100	300mA
4	0.5	2	2743019446	Ferrite bead, high current	Fair-rite	C3528	-55 to +125	2000mA
1	5	5	65906-5	DIN 120-pin plug, RA	AMP	DIN120RA	-55 to +125	---
1	10	10	MISC	Misc components	---	---	---	---
1	50	50	BLANK	Blank PCB	Prime Tech	---	---	---
		380	Subtotal					

Power/Utility PCB

Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
1	57	57	UWR-5/1000-D48	DC-DC 15W +5volts	Datel	DCDC-C7	-25 to +60	1000mA
1	84	84	BWR-5/1700-D48A	DC-DC 15W +/-5 volts	Datel	DCDC-C4	-40 to +50	1700mA
1	107	107	BMP-15/1300-D48	DC-DC 40W +/-15 volts	Datel	DCDC-C11	-40 to +60	1300mA
1	57	57	BWR-15/165-D48	DC-DC 5W +/-15 volts	Datel	DCDC-C7	-25 to +60	165mA
1	2	2	LM317EMP	Voltage regulator	National	SOT-223	0 to +125	mA
4	4	16	OP295GS	Dual op-amp	Analog Devices	SO-G8	-40 to +85	36V
1	77	77	MAX547ACMH	Octal DAC	Maxim	QFP10X10-G44/N	0 to +70	6V
1	10	10	MAX6341ESA	Voltage reference	Maxim	SO-G8	-40 to +85	40V
1	8	8	AD7888BR	Serial 12-bit ADC	Analog Devices	SO-G16	-40 to +105	7V
8	1	8	PXT4401	NPN transistor	Philips	SOT-89R	-65 to +150	600mA
40	0.1	4	CRCW1206 series	Resistor, thick film, 1%	Vishay/Dale	C3216-1206	-55 to +125	125mW
8	0.1	0.8	VJ0805Y series	Cap, ceramic, X7R, 50V, 10%	Vishay	CC2012-0805	-55 to +125	50V
8	0.5	4	VJ1210Y474KXAA	Cap, X7R, 50V, 470 nF	Vishay	CC3225-1210	-55 to +125	50V
1	0.5	0.5	293D335X9020B2	Cap, tantalum, 20V, 3.3uF	Vishay	CC3528-B	-55 to +85	20V
19	1	19	593D336X9020D2	Cap, tantalum, 20V, 33uF	Vishay/Sprague	CC7343-D	-55 to +85	20V
0	1	0	593D686X9020D2	Cap, tantalum, 20V, 68uF	Vishay/Sprague	CC7343-D	-55 to +85	20V
2	1	2	SK100M100ST	Cap, aluminum, 63V, 10uF	Mallory	RAD-0.1P	-40 to +85	63V
2	0.5	1	NLC322522T-100K	Inductor, 10uH	TDK	C3225-1210	-20 to +100	300mA
10	1	10	R622LY-100K	Inductor -- 10 uH	TOKO	RAD-0.2L	-20 to +80	3000mA
0	1	0	R622LY-330K	Inductor -- 33 uH	TOKO	RAD-0.2L	-20 to +80	1600mA
7	0.5	3.5	2743019446	Ferrite bead, high current	Fair-rite	C3528	-55 to +125	2000mA
1	1	1	60R075	Polyfuse	Littlefuse	RAD-0.2		
1	5	5	65906-5	DIN 120-pin plug, RA	AMP	DIN120RA	-55 to +125	---
1	10	10	MISC	Misc components	---	---	---	---
1	50	50	BLANK	Blank PCB	Prime Tech	---	---	---
		536.8	Subtotal					

Backplane A (8K x 8K)

Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
10	5	50	535098-5	DIN 120-pin socket	AMP	DIN120V	-55 to +125	---
1	50	50	BLANK	Blank PCB	Prime Tech	---	---	---
		100	Subtotal					

Backplane B (4K x 4K)

Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
4	5	20	535098-5	DIN 120-pin socket	AMP	DIN120V	-55 to +125	---
1	50	50	BLANK	Blank PCB	Prime Tech	---	---	---
		70	Subtotal					

PCI Interface PCB

Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
1	30	30	S5920Q	PCI interface	AMCC	QFP28X28-G160/N		
1	64	64	EPM7256AETC144-6	EPLD Programmable logic	Altera	TQFP20X20-G144/	0 to +70	
1	65	65	CY7C4265-15AC	FIFO 8k x 18	Cypress	QFP14X14-G64/N	0 to +70	7V
1	20	20	SY87700LH1	Clock recovery	Micrel	TQFP7X7-G32/N	-40 to +85	7V
1	5	5	LTC1518CS	Quad RS-485 receiver	National Semi	SO-G16	0 to +70	10V
1	5	5	LTC1688CS	Quad RS-485 driver	National Semi	SO-G16	0 to +70	7V
1	10	10	MC100EPT22D	Dual TTL-LVPECL translator	Motorola	SO-G8	-40 to +85	6V
1	10	10	MC100EPT23D	Dual LVPECL-TTL translator	Motorola	SO-G8	-40 to +85	6V
1	75	75	HFBR-5905	Optical transceiver	HP	HFBR	0 to +70	---
1	3	3	ECS-2200B	Oscillator	ECS	OSC-8	0 to +70	---
1	1	1	XC24C08PI	Serial EPROM	Xicor	DIP-8	0 to +70	5.5V
1	3	3	LM3940IT-3.3	Voltage regulator	Linear Technology	TO-220H	-40 to +125	1000mA
3	1	3	MR5010.MP2	LED	QT Opto	LED-2	---	---
40	0.1	4	CRCW1206 series	Resistor, thick film, 1%	Vishay/Dale	C3216-1206	-55 to +125	125mW
3	0.5	1.5		Resistor network, 10K	Vishay/Bournes	SIP-10	-55 to +125	750mW
25	0.1	2.5	VJ0805Y series	Cap, ceramic, X7R, 50V, 10%	Vishay	CC2012-0805	-55 to +125	50V
2	0.5	1	VJ1210Y474KXAA	Cap, X7R, 50V, 470 nF	Vishay	CC3225-1210	-55 to +125	50V
1	0.5	0.5	GRM235Y5V475Z050	Cap, Y5V, 50V, 4.7uF	Murata	CC3225-1210	-20 to +80	50V
3	0.5	1.5	293D335X9020B2	Cap, tantalum, 20V, 3.3uF	Vishay	CC3528-B	-55 to +85	20V
2	1	2	593D336X9020D2	Cap, tantalum, 20V, 33uF	Vishay/Sprague	CC7343-D	-55 to +85	20V
2	0.5	1	2743019446	Ferrite bead, high current	Fair-rite	C3528	-55 to +125	2000mA
5	0.5	2.5	2508055007Y0	Ferrite bead, medium current	Fair-rite	C2012-0805	-55 to +125	300mA
3	1	3	TSW series	Header 0.1" pins	Samtec	HDR	-65 to +125	---
1	3	3	DB15HD	High density connector 15-pin	---	---	---	---
1	5	5	MISC	Misc components	---	---	---	---
1	50	50	BLANK	Blank PCB	Prime Tech	---	---	---
		371.5	Subtotal					

Misc components

Quantity	Price	Cost	Part	Description	Manufacturer	Footprint	Operating Temp	Max Rating
1	180	180	EFP080--60m	Optical fiber, MT-RJ, 60metres	Blackbox	---	---	---

1	16	16	PT06E-8-3S	Bendix 3-pin socket, cable	Amphenol	---	---	---
1	9	9	PT02A-8-3P	Bendix 3-pin plug, bulkhead	Amphenol	---	---	---
1	17	17	PT06E-10-98S	Bendix 6-pin socket, cable	Amphenol	---	---	---
1	17	17		Bendix 6-pin socket, bulkhead	Amphenol	---	---	---
50	0.1	5	TP-107-02	SMT test point	Components Corp	SMTP	---	---
		244	Subtotal		Amphenol			