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3.2 Video Digitizer

Video digitizers in the CompactPCI 3U format.

Make	Model	Inputs	Features	VxWorks	Price ($A)
ImageNation	PCX200	1 (4)		Eventually	$1153
PEP	CP335	2	70M/sec	Unknown	$3970

Table 3-2: Video Digitizer Options

All seem to be based on the Brooktree Bt848 chip.

Are there other framegrabbers available in CompactPCI?

Do any have an existing VxWorks driver?

3.3 Motion Control

There are very few dedicated motion control boards which still produce PWM output directly (due to changes in the basic chip sets). There are several PC/104 motion control boards based on the LM629 chip which produce PWM output. There are two IP mezzanine boards based on the LM629 chip and one board based on an Altera chip which produce PWM output.

Make	Model	Chip	Axes	Features	VxWorks	Price
Tech80	50A (double IP)	Altera	4	S-profile, encoder input, digital I/O	Maybe	
Tech80	29A	LM629	2	Encoder input	Maybe	
SBS-Greenspring	IP-629Servo-2	LM629	2	3 TTL, Encoder input	Yes	

Table 3-3: Motion Control IP Options

3.4 Analog/Digital, Digital I/0, Serial I/O

Gespac makes CompactPCI boards, Greenspring makes IP modules.

Is optical isolation needed in our system?

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Make	Model	Channels	Resolu-tion	Input	Features	VxWorks	Price
Gespac	PCIADC-32	32 (16)	14-bits	+/-10V @ 0-20mA		Unknown	
SBS-Greenspring	IP-ADIO (double IP)	16 (8 diff)	13-bits	+/-10V	2 D/A 68 I/0 2 clocks	Unknown	
SBS-Greenspring	IP-16ADC	16 (8 diff)	16-bits	+/-10V, 0-10V, +/- 5V, 0-5V	Voltage protection	Yes	
SBS-Greenspring	IP-AD16SS	16	16-bit	+/- 10V		Yes	
SBS-Greenspring	IP-OptoAD16	16 (8 diff)	16-bit	+/-10V, 0-10V	Optical Isolation	Yes	

Table 3-4: Analog Signal Digitizer Options

Other A/D IP modules or CompactPCI boards?

Make	Model	Channels	Features	VxWorks	Price
Gespac	PCICIO-12	12/4		Unknown	
SBS-Greenspring	IP-Digital24	24	2 Inter-rupts	Unknown	
SBS-Greenspring	IP-Digital48	48	8 Inter-rupts 2 Timers	Unknown	
SBS-Greenspring	IP-OptoOutput	16	Optical Isolation	Yes	
SBS-Greenspring	IP-OptoInput	16	Optical Isolation	Yes	

Table 3-5: Digital I/O Options

Other Digital I/O IP modules or CompactPCI boards?

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Make	Model	Channels	Protocols	Features	VxWorks	Price
SBS-Greenspring	IP-Serial	2	EIA-232 EIA-422		Unknown	
SBS-Greenspring	IP-Octal 232	8	EIA-232	8TTL Inputs	Unknown	
SBS-Greenspring	IP-OctalOpto (double-IP)	8	EIA-232, EIA-422	Optical Isolation	Unknown	

Table 3-6: Serial I/O Options

Other Serial I/O IP modules or CPCI boards?

3.5 Mezzanine Card Carrier

Mezzanine (IP) card carriers in the CompactPCI 3U format all carry two IPs.

Make	Model	IPs	Features	VxWorks	Price
Gespac	PCIIPC-1	2		Yes	
OR	CSIPC	2	DSP available	Maybe	
SBS-Greenspring	CPC100	2		Maybe	

Table 3-7: Mezzanine Card Carrier Options

3.6 Enclosure

The critical feature of the enclosure is its ability to fit within the cylindrical pressure vessel. At least five slots will be required. No power supply is needed since the backplane will be powered by batteries (with DC/DC conversion to 5 volts or 3.3 volts as needed).

Make	Model	Slot	Width	Height	Depth	Diagonal	Price
Elma	Type 11	6	21.3cm	3U	16.0cm	25.1cm	$405
Vector	Vector-Pac CCK 26-36-03	4	18.8cm	3U	12.7cm	23.7cm	$450
Zero	DotTen CPCI6S160ST	6	17.7cm	13.3cm	20.7cm	22.7cm	$450

Table 3-8: Enclosure Options

4.0 Other System Designs

4.1 On-board Laptop

The possibility of mounting an laptop computer inside Kambara was considered as this would provide a number of useful features, like Ethernet support and an integral hard disk. There are challenges/unknowns in running VxWorks (or a suitable multi-tasking operating system), interfacing the various devices including PWM signal production, and integrating high-rate video digitizing.

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