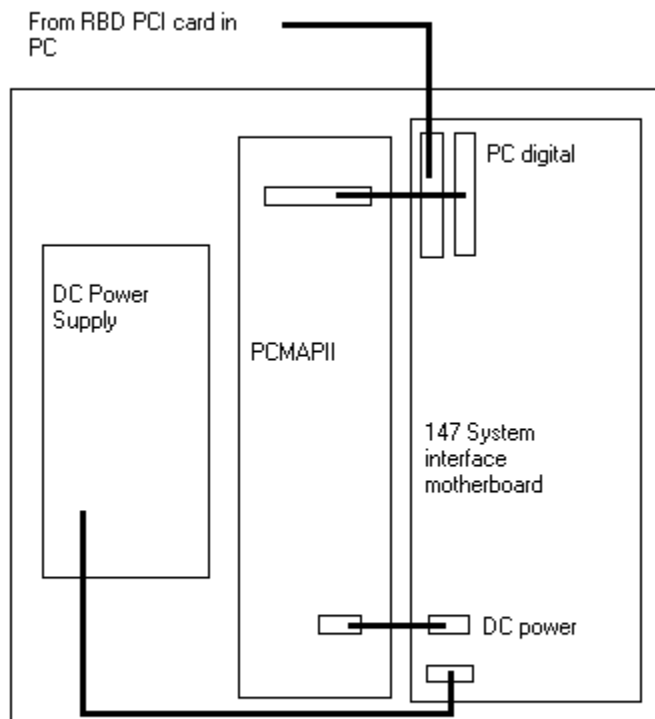**RBD** ENTERPRISES

PCMAPII Summary

Overview:

The PCMAPII is a circuit card that fits inside of the RBD 147 system interface. The function of the PCMAPII card is to provide control of an electron beam for scanning and positional purposes.

The RBD 147 system interface provides communication to the PCMAPII card via a proprietary RBD bus, as well as DC power (+/- 12, +5 VDC).
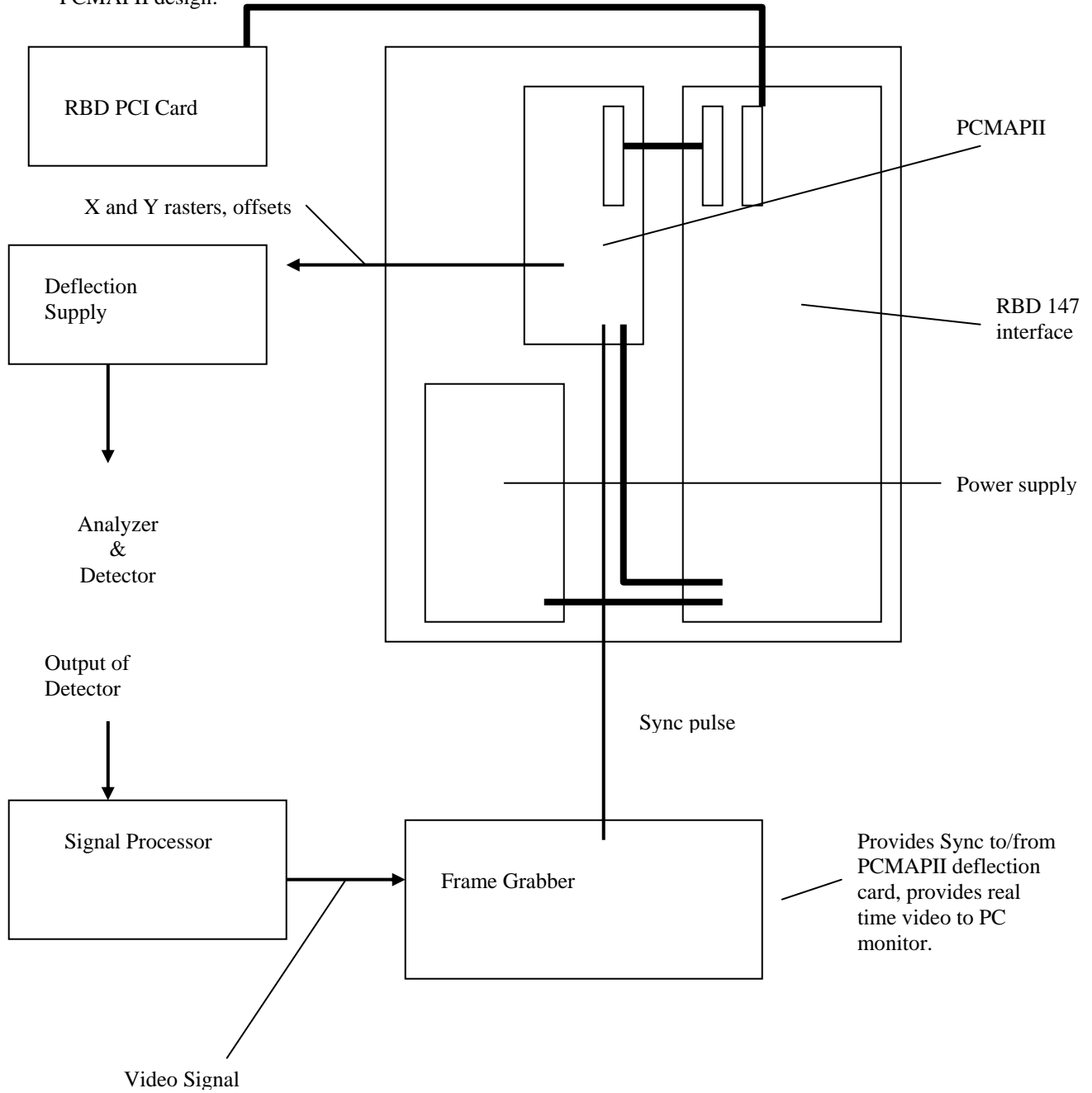

Specifications:

2 14 bit D/A outputs at TV rates
2 16 bit offset D/A outputs summed to TV DACs
Sync outputs, X and Y (for frame grabber)
Video Signal conditioner circuit

PCMAPII Block Diagram

The following block diagram shows the relationship between all of the components involved in the PCMAPII design:

RBD PCI Card

PCMAPII

X and Y rasters, offsets

Deflection Supply

RBD 147 interface

Power supply

Analyzer
&
Detector

Output of
Detector

Sync pulse

Signal Processor

Frame Grabber

Provides Sync to/from PCMAPII deflection card, provides real time video to PC monitor.

Video Signal

PCMAPII Adjustment Table

Potentiometer	Function	Test Point		Function
R047	Current Sink (Horz rate)	01		Digital Ground
R54		02		Horz Sync
R067	X Scan Gain	03		Vert Sync
R74	X gain Fine Offset	04		Comp Sync
R75	X Gain Offset	05		BSEL
R80	Y Scan Gain	06		Digital Ground
R87	Y Fine Gain Offset	07		Y TV Sweep
R88	Y Gain Offset	08		X TV Sweep
R89	Video Offset	09		Analog Ground
R100	Video Out Gain	10		X Command (Scan)
R102	Video Out Offset	11		X POS (Offset)
R107	V/F input offset	12		Y POS (Offset)
R109	V/F input gain	13		X TV Scan
R115	V/F internal offset	14		Y Command (Scan)
		15		Y TV Scan
		16		First Stage Video Gain
		17		Analog Ground (Video)
		18	**18**	**V/F Input (0 to 3 volts)**
		19	**19**	**Video V/F Freq Out**
		20	**20**	**Video Out 50 Ohm**
		21	**21**	**Video Out 75 Ohm**
		22	**22**	**Video Out High Z**
		23		Digital Ground (Freq Out)

PCMAPII ISP NOTES

Load sequence is rbddecode, rdbcount1, rbdcount2.

Calibration Procedure

Set the following Potentiometers fully CCW:
R067 X Gain
R080 Y Gain

PCMAPII Diagnostics
The PCMAPII Diagnostic Program provides an easy way to test the functions of the PCMAPII card. The PCMAPII executable is required and also the rbd147dm.dll file needs to be in the same directory as the PCMAPII program.
The Base Address must be set to 0x60
To enable the raster, you need to first load 0x3340 to the control word.
You can use the pull down menu to load values for X and Y POS and Scan Rasters.
The range for X pos is 0000 to FFFF.   8000 is mid range (zero volts for POS, 50% of full raster for Scan)

X Scan Adjustment
Connect Scope to TP 10 (X Command) referenced to TP 9 (Analog ground)
Load X POS to 8000 and center R074 (X POS fine offset) Adjust R075 (X POS coarse offset) for zero volts. If needed also adjust R74 for exactly Zero volts DC.
Load Xscan to FFFF and adjust R067 for 8.0 VDC P-P waveform. Period should be approximately 63uS. If not, adjust R047 for correct period.

Y Scan Adjustment
Connect Scope to TP 14 (Y Command) referenced to TP 9 (Analog ground)
Load Y POS to 8000 and center R087 (Y POS fine offset) Adjust R088 (Y POS coarse offset) for zero volts. If needed also adjust R87 for exactly Zero volts DC.
Load Yscan to FFFF and adjust R080 for 6.65 VDC P-P waveform. Period should be approximately 16.2 mS.

Video