NuIPC®
cPCI-8215

3U CompactPCI VGA/LCD Card

User's Guide

Manual Rev. 2.20: May 25,1999

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Acknowledgments

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Introduction

The cPCI-8215 is an industrial grade CompactPCI 3U display card with Chips and Technologies 69000 video accelerator integrated with memory.

This display card supports traditional analog CRT monitors and a wide range of popular LCD, EL, gas plasma flat panel displays. It can drive CRT displays with resolutions up to 1024x768 in 64K colors. It is also capable of driving color panel displays with resolutions of 800x600 in 16.7 million colors.

1-1 Specifications

. Chipset:
Chips and Technologies 69000 video accelerator

. Memory :
On chip 2MB SDRAM support

. Connector:
15 pin VGA D-Sub connector

. Bus :
Meet PICMG Compact PCI 3U standard bus interface

. Power Supply Voltage :
+5V 1.0A

. Operating Temperature :
32 to 140°F (0 to 60°C)

. Board Size :
160mm(L) X 100mm(W)

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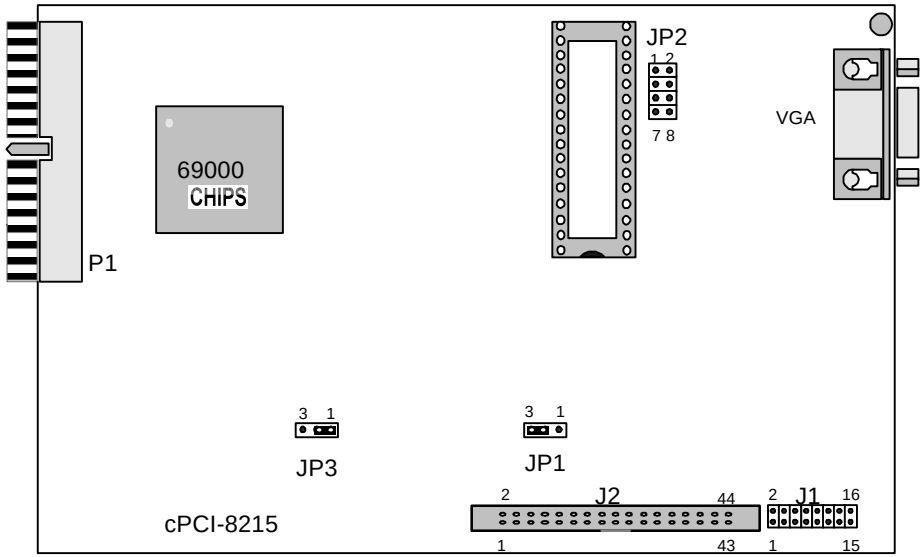
Jumpers and Connectors

Figure below shows the jumpers' and connectors' location on the cPCI-8215.



Jumper location of cPCI-8215

2-1 Jumpers setting

Flat Panel Clock Select (JP1)

	JP1
Invert Clock	1-2
Normal Clock	2-3

LCD Panel Type Select (JP2)

1-2, 3-4, 5-6, 7-8 four jumpers to select up to 14 types' LCD BIOS

Flat Panel Power Select (JP3)

	JP3
+5V	1-2
+3.3V	2-3

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Display Driver

3-1. Microsoft Windows 95/98 installation

1. ENSURE that the MS Windows 95/98 is up and running properly using the VGA driver that has been detected.
2. OPEN the "*My computer*" program group and SELECT the "*Control Panel*" icon.
3. SELECT the "*Display*" icon and then SELECT the "*Settings*" page.
4. SELECT the "*Change Display Type*" selection bar, and then SELECT the "*Change*" button next to the Adapter Type.
5. On the "*Select Device*" page, SELECT the "*Have Disk*" button to install the display driver from the diskette.
6. After the "*Have Disk*" button selected a "*Install From Disk*" window will appear. SELECT the "*Browse*" button to browse the directory "X:\WIN95" of your diskette drive. (X=A or B)
7. The files ***.INF** will appear under the file name list. SELECT "*OK*" to return to the "*Install From Disk*" window. Under the statement "*Copy manufacturer's files from*" SELECT "*OK*" to start installing the driver files from the FLOPPY drive.
8. "*Select device*" window will appear. Under Models, the driver file name will be listed, SELECT "*OK*" to close "*Select Device*" window and select "*Color Palette*" and "*Desktop Area*" of your choice.
9. Once the desired color palette (the number of colors) and desktop area (resolution) has been chosen, the Windows 95 or 98 system will be restarted to load this accelerated driver.

3-2. MS Windows NT 4.0 Driver Install

Windows NT 4.0 -- Chips and Technologies Driver Installation Procedure

Step 1: Click the Start button, then go to Settings and click on Control Panel.

Click on the Display icon to start the Display Properties window.

Click on the Settings tab, and then click on Display Type.

In the Change Display Type window, click on Change in Adapter Type. This will bring up the Select Device Window.

Step 2: Chips & Technologies display drivers can be installed from a manufacturer supplied Installation Diskette, or from the default drivers provided on the Windows NT 4.0 CDROM.

Installing from Manufacturer supplied diskette

In the Change Display window, click on <Have Disk>. Follow the directions on the screen to supply the directory where the Windows NT driver files are located. Then select OK, or press <enter>.

Select Chips Video Accelerator from Display list provided, then click OK or press <enter>.

You will then see a warning panel about Third Party Drivers. Click on Yes to finish the install.

Once the installation is complete, the system must be shut down and restarted for the new drivers to take effect.

Installing Drivers provided on NT 4.0 CDROM

In the Change Display window, from the list of Manufacturers, select Chips & Technologies. In the Display Window, select Chips & Technologies Video Accelerator, then click OK or press <enter>.

You will then see a warning panel about Third Party Drivers. Click on Yes to finish the install.

Follow the directions on the screen to supply the directory where the Windows NT driver files are located. Then select OK, or press <enter>.

Once the installation is complete, the system must be shut down and restarted for the new drivers to take effect.

Step 3: When the system has restarted, the default graphics mode (usually 640x480x256 color) has been automatically selected.

Click the Start button, then go to Settings and click on Control Panel.

Click on the Display icon to start the Display Properties window.

Click on the Settings tab.

A new screen setting can be selected using either of the following methods:

1: Use the slide-bar in the Desktop Area to select new setting.

2: Click on List All Modes. From the list provided, select a new setting, then click OK or press enter.

Click on Test to test the newly selected graphics mode. Follow the instructions given on the screen. A test screen should appear, followed by the Testing Mode window. Click on Yes to continue. Click on Apply to switch to the new graphics mode.

Graphics modes are changed dynamically on NT 4.0, so you do not need to shutdown and restart for the new screen settings to work.

3-3. MS Windows 95/98 Refresh Rate Utility Regulation

1. Open the "*My computer*" program group and SELECT the "*Control panel*" icon.
2. Double click on *DISPLAY* and SELECT "*CHIPS*". There will now be a refresh tab for changing the refresh rate. You may click the tab to change the refresh rate.

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3.4 Panel Support

The cPCI-8215 board provides a very convenient way to setup panels that are up to 14 types.

Panel #	Panel Type
1	1024x768 Dual Scan STN Color Panel
2	1280x1024 TFT Color Panel
3	640x480 Dual Scan Color Panel
4	800x600 Dual Scan Color Panel
5	640x480 Sharp TFT Color Panel
6	640x480 18-bit TFT Color Panel
7	1024x768 TFT Color Panel
8	800x600 TFT Color Panel
9	800x600 TFT Color Panel (44K BIOS only)
10	800x600 TFT Color Panel (44K BIOS only)
11	800x600 Dual Scan Color Panel (44K BIOS only)
12	800x600 Dual Scan Color Panel (44K BIOS only)
13	1024x768 TFT Color Panel (44K BIOS only)
14	1024x 768 TFT Color Panel (44K BIOS only)
15	Reserved
16	Reserved

Meanwhile, please also set the jumpers on **JP2** as the following:

Panel #	7-8	5-6	3-4	1-2
1	Close	Close	Close	Close
2	Close	Close	Close	Open
3	Close	Close	Open	Close
4	Close	Close	Open	Open
5	Close	Open	Close	Close
6	Close	Open	Close	Open
7	Close	Open	Open	Close
8	Close	Open	Open	Open
9	Open	Close	Close	Close
10	Open	Close	Close	Open

(to be continued…)

(continued)

Panel #	7-8	5-6	3-4	1-2
11	Open	Close	Open	Close
12	Open	Close	Open	Open
13	Open	Open	Close	Close
14	Open	Open	Close	Open
15	Open	Open	Open	Close
16	Open	Open	Open	Open

4

Video Modes

This display card supports all standard VGA modes as well as a wide selection of extended modes. The following table lists the modes and vertical refresh rates that BIOS can support.

Table 1: Standard Video Display Modes

Video Mode	VESA VBE Mode	Pixel Reso-lution	Color Res.	Mode Type	Display Adapter	Font Size	Char. Disp.	Dot Clock (MHz)	Horiz. Freq. (MHz)	Vert Freq (Hz)	Video Mem. (KB)
00h	--	320x200	16(gray)	Text	CGA	8x8	40x25	25	31.5	70	256
		320x350	16(gray)		EGA	8x14	40x25	25	31.5	70	256
		360x400	16		VGA	9x16	40x25	28	31.5	70	256
01h	--	320x200	16	Text	CGA	8x8	40x25	25	31.5	70	256
		320x350	16		EGA	8x14	40x25	25	31.5	70	256
		360x400	16		VGA	9x16	40x25	28	31.5	70	256
02h	--	640x200	16(gray)	Text	CGA	8x8	80x25	25	31.5	70	256
		640x350	16(gray)		EGA	8x14	80x25	25	31.5	70	256
		720x400	16		VGA	9x16	80x25	28	31.5	70	256
03h	--	640x200	16	Text	CGA	8x8	80x25	25	31.5	70	256
		640x350	16		EGA	8x14	80x25	25	31.5	70	256
		720x400	16		VGA	9x16	80x25	28	31.5	70	256
04h	--	320x200	4	Graph	All	8x8	40x25	25	31.5	70	256
05h	--	320x200	4(gray)	Graph	CGA	8x8	40x25	25	31.5	70	256
		320X200	4(gray)		EGA	8x8	40x25	25	31.5	70	256
		320X200	4		VGA	8x8	40x25	25	31.5	70	256
06h	--	640x200	2	Graph	All	8x8	80x25	25	31.5	70	256
07h	--	720x350	Mono	Text	MDA	9x14	80x25	28	31.5	70	256
		720x350	Mono		EGA	9x14	80x25	28	31.5	70	256
		720x400	Mono		VGA	9x16	80x25	28	31.5	70	256
08h-0Ch	--	Reserved			-		-				
0Dh	--	320x200	16	Graph	E/VGA	8x8	40x25	25	31.5	70	256
0Eh	--	640x200	16	Graph	E/VGA	8x8	80x25	25	31.5	70	256
0Fh	--	640x350	Mono	Graph	E/VGA	8x14	80x25	25	31.5	70	256
10h	--	640x350	16	Graph	E/VGA	8x14	80x25	25	31.5	70	256
11h	--	640x480	2	Graph	VGA	8x16	80x30	25	31.5	60	256
12h	--	640x480	16	Graph	VGA	8x16	80x30	25	31.5	60	256
13h	--	320x200	256	Graph	VGA	8x8	40x25	25	31.5	70	256

Table 2: Extended Low Resolution Video Modes

Video Mode	VESA VBE Mode	Pixel Reso-lution	Color	Mode Type	Mem. Org.	Font Size	Char. Disp.	Dot Clock (MHz)	Horiz. Freq. (MHz)	Vert Freq (Hz)	Video Mem. (KB)
14h	--	320x200	256	Graph(L)	Pack Pix	8x16	40x12	12.587	31.5	70	256
15h	--	320x200	64K	Graph(L)	Pack Pix	8x16	40x12	12.587	31.5	70	256
16h	--	320x200	16M	Graph(L)	Pack Pix	8x16	40x12	12.587	31.5	70	256
17h	--	320x240	256	Graph(L)	Pack Pix	8x16	40x15	12.587	31.5	60	256
18h	--	320x240	64K	Graph(L)	Pack Pix	8x16	40x15	12.587	31.5	60	256
19h	--	320x240	16M	Graph(L)	Pack Pix	8x16	40x15	12.587	31.5	60	256
1Ah	--	400x300	256	Graph(L)	Pack Pix	8x16	50x18	20	37.5	60	256
1Bh	--	400x300	64K	Graph(L)	Pack Pix	8x16	50x18	20	37.5	60	256
1Ch	--	400x300	16M	Graph(L)	Pack Pix	8x16	50x18	20	37.5	60	352
1Dh	--	512x384	256	Graph(L)	Pack Pix	8x16	64x24	32.5	48.4	60	256
1Eh	--	512x384	64K	Graph(L)	Pack Pix	8x16	64x24	32.5	48.4	60	384
1Fh	--	512x384	16M	Graph(L)	Pack Pix	8x16	64x24	32.5	48.4	60	576
31h	100h	640x400	256	Graph(L)	Pack Pix	8x16	80x25	25.175	31.5	70	256
62h	--	640x400	64K	Graph(L)	Pack Pix	8x16	80x25	25.175	31.5	70	500
63h	--	640x400	16M	Graph(L)	Pack Pix	8x16	80x25	25.175	31.5	70	750

Notes: I = Interlaced; L = Linear

Table 3: Extended Video Modes

Video Mode	VESA VBE Mode	Pixel Reso-lution	Color	Mode Type	Mem. Org	Font Size	Char. Disp.	Dot Clock (MHz)	Horiz. Freq. (MHz)	Vert Freq (Hz)	Video Mem. (KB)
20h	120h	640x480	16	Graph(L)	Pack Pix	8x16	80x30	25.175	31.5	60	256
								31.5	37.5	75	256
								36	43.3	85	256
22h	122h	800x600	16	Graph(L)	Pack Pix	8x16	100x3	36	35.1	56	256
								40	37.9	60	256
								49.5	46.9	75	256
								56.25	53.7	85	256
24h	124h	1024x768	16	Graph(L)	Pack Pix	8x16	128x4	44.9	35.5	43(I)	384
								65	48.4	60	384
								78.75	60	75	384
								94.5	68.7	85	384
28h	128h	1280x1024	16	Graph(L)	Pack Pix	8x16	160x6	78.75	47	43(I)	640
								108	64	60	640
								135	79.98	75	640
2Ah*	--	1600x1200	16	Graph(L)	Pack Pix	8x16	200x7	135	79.98	75	938
30h	101h	640x480	256	Graph(L)	Pack Pix	8x16	80x30	25.175	31.5	60	300
								31.5	37.5	75	300
								36	43.3	85	300
31h	100h	640x400	256	Graph(L)	Pack Pix	8x16	80x25	25.175	31.5	70	256
32h	103h	800x600	256	Graph(L)	Pack Pix	8x16	100x3	36	35.1	56	469
								40	37.9	60	469
								49.5	46.9	75	469
								56.25	53.7	85	469
34h	105h	1024x768	256	Graph(L)	Pack Pix	8x16	128x4	44.9	35.5	43(I)	768
								65	48.4	60	768
								78.75	60	75	768
								94.5	68.7	85	768
38h	107h	1280x1024	256	Graph(L)	Pack Pix	8x16	160x6	78.75	47	43(I)	1280
								108	64	60	1280
								135	79.98	75	1280
3Ah*	--	1600x1200	256	Graph(L)	Pack Pix	8x16	200x7	162	75	60	1875
40h	110h	640x480	32K	Graph(L)	Pack Pix	8x16	80x30	25.175	31.5	60	600
								31.5	37.5	75	600
								36	43.3	85	600

Notes: I = Interlaced; L = Linear * =Modes 2Ah is for flat panel only

Table 3: Extended Video Modes (continued)

Video Mode	VESA VBE Mode	Pixel Reso-lution	Color Res.	Mode Type	Mem. Org	Font Size	Char. Disp.	Dot Clock (MHz)	Horiz. Freq. (MHz)	Vert Freq (Hz)	Video Mem. (KB)
41h	111h	640x480	64K	Graph(L)	Pack Pix	8x16	80x30	25.175	31.5	60	600
								31.5	37.5	75	600
								36	43.3	85	600
42h	113h	800x600	32K	Graph(L)	Pack Pix	8x16	100x37	36	35.1	56	938
								40	37.9	60	938
								49.5	46.9	75	938
								56.25	53.7	85	938
43h	114h	800x600	64K	Graph(L)	Pack Pix	8x16	100x37	36	35.1	56	938
								40	37.9	60	938
								49.5	46.9	75	938
								56.25	53.7	85	938
44h	116h	1024x768	32K	Graph(L)	Pack Pix	8x16	128x48	44.9	35.5	43(I)	1536
								65	48.4	60	1536
								78.75	60	75	1536
								94.5	68.7	85	1536
45h	117h	1024x768	64K	Graph(L)	Pack Pix	8x16	128x48	44.9	35.5	43(I)	1536
								65	48.4	60	1536
								78.75	60	75	1536
								94.5	68.7	85	1536
46h	--	Generic	32K	Graph(L)	Pack	8x16	--	--	--	--	--
47h	--	Generic	64K	Graph(L)	Pack	8x16	--	--	--	--	--
50h	112h	640x480	16M	Graph(L)	Pack Pix	8x16	80x30	25.175	31.5	60	900
								31.5	37.5	75	900
								36	43.3	85	900
52h	115h	800x600	16M	Graph(L)	Pack Pix	8x16	100x37	36	35.5	56	1407
								40	37.9	60	1407
								49.5	46.9	75	1407
								56.25	53.7	85	1407
6Ah	102h	800x600	16	Graph(L)	Planar	8x16	100x37	36	35.1	56	256
								40	37.8	60	256
								49.5	46.9	75	256
								56.25	53.7	85	256

Notes: I = Interlaced L = Linear * =Modes 3Ah is for flat panel only

Table 3: Extended Video Modes (continued)

Video Mode	VESA VBE Mode	Pixel Reso-lution	Color Res.	Mode Type	Mem. Org	Font Size	Char. Disp.	Dot Clock (MHz)	Horiz. Freq. (MHz)	Vert Freq (Hz)	Video Mem. (KB)
64h	104h	1024x768	16	Graph	Planar	8x16	128x48	44.9	35.5	43(I)	384
								65	48.4	60	384
								78.75	60	75	384
								94.5	68.7	85	384
68h	106h	1280x1024	16	Graph	Planar	8x16	160x64	78.75	47	43(I)	640
								108	64	60	640
								135	79.98	75	640
70h	101h	640x480	256	Graph	Pack Pix	8x16	80x30	25.175	31.5	60	300
								31.5	37.5	75	300
								36	43.3	85	300
71h	100h	640x400	256	Graph	Pack Pix	8x16	80x25	25.175	31.5	70	256
72h	103h	800x600	256	Graph	Pack Pix	8x16	100x37	36	35.1	56	469
								40	37.9	60	469
								49.5	46.9	75	469
								56.25	53.7	85	469
74h	105h	1024x768	256	Graph	Pack Pix	8x16	128x48	44.9	35.5	43(I)	768
								65	48.4	60	768
								78.75	60	75	768
								94.5	68.7	85	768
78h	107h	1280x1024	256	Graph	Pack Pix	8x16	160x64	78.75	47	43(I)	1280
								108	64	60	1280
								135	79.98	75	1280

Notes: I = Interlaced L = Linear

Appendix

A Connectors' Pin Assignment

Compact PCI 64-Bit Connector (P1) Pin Assignments

25	GND	5V	REQ64#	ENUM#	3.3V	5V	GND	**P1 / J1 CONNECTOR**
24	GND	AD1	5V	V(I/O)	AD0	ACK64#	GND	
23	GND	3.3V	AD4	AD3	5V	AD2	GND	
22	GND	AD7	GND	3.3V	AD6	AD5	GND	
21	GND	3.3V	AD9	AD8	GND	C/BE0#	GND	
20	GND	AD12	GND	V(I/O)	AD11	AD10	GND	
19	GND	3.3V	AD15	AD14	GND	AD13	GND	
18	GND	SERR#	GND	3.3V	PAR	C/BE1#	GND	
17	GND	3.3V	SDONE	SBO#	GND	PERR#	GND	
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND	
15	GND	3.3V	FRAME#	IRDY#	GND	TRDY#	GND	
14-12	**KEY**							
11	GND	AD18	AD17	AD16	GND	C/BE2#	GND	
10	GND	AD21	GND	3.3V	AD20	AD19	GND	
9	GND	C/BE3#	IDSEL	AD23	GND	AD22	GND	
8	GND	AD26	GND	V(I/O)	AD25	AD24	GND	
7	GND	AD30	AD29	AD28	GND	AD27	GND	
6	GND	REQ#	GND	3.3V	CLK	AD31	GND	
5	GND	RSV	RSV	RST#	GND	GNT#	GND	
4	GND	RSV	GND	V(I/O)	INTP	INTS	GND	
3	GND	INTA#	INTB#	INTC#	5V	INTD#	GND	
2	GND	TCK	5V	TMS	TDO	TDI	GND	
1	GND	5V	-12V	TRST#	+12V	5V	GND	
PIN	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	

CRT Display Connector (VGA)

Pin no.	Signal
1	RED
2	GREEN
3	BLUE
4	N/C
5	GND
6	GND
7	GND
8	GND
9	N/C
10	GND
11	N/C
12	N/C
13	H-SYNC
14	V-SYNC
15	N/C