## BCM 540/541 Motherboard Overview

Depot Repair Form	Battery	The battery is embedded in the DS12887 RTC (real time clock) IC (integrated circuit).		
Direction Desktops	BIOS	Phoenix Technologies Flash BIOS, (Boot Block, PLCC).		
Downloads	Bus	One EISA riser slot for ISA and PCI buses		
Express5800 Servers	Cache	0K/256K/512KB, Write Back Direct Mapped organization in a		
Frequently Asked Questions		Card Edge Low Profile (CELP) socket for flexible SRAM type support (Asynchronous and Synchronou Pipeline Burst).		
Handheld	Chipset	Intel 82430FX PCI/ISA Chipset (Triton).		
PCs Monitors	CPU	Intel P54C 166/66*, 150/60*, 133/66, 120/60*, 100/66, 90/60, and 75/50		
Notebooks	I/O	SMC FDC37C665IR		
PowerMate & Ready ES Pro	Interfaces	VGA Port. Two aynchronous serial ports using high speed 16C550 compatible ports with 16-byte FIFOs.		
Desktops		25 pin Parallel Port supporting EPP, ECP and		
Search		Centronics Interface. Audio Line In		
Service Provider Locator		Audio Line Out. Speaker Out.		
UltraCare Services		Two pin infrared port with IrDA (HPSIR), ASKIR and Consumer Remote IR support.		
Versa Utilities	RAM	4 SIMM Sockets, Burst Mode Read-Write support. 8 MB minimum to 128 MB maximum using 4, 8, 16,		
Windows Update		32MB non parity, 60ns EDO or 70ns Fast Page or faster.		
Y2K Information	Video Options	PCI GUI Accelerator and Motion Video playback controller using Alliance's ProMotion-6422TM Standard 1MB memory upgradable to 1.5MB or 2MB using 256Kx16 DRAM.		
	Audio Options	OPTi930 Sound Blaster compatible single chip (82C930A). upgradable via a standard WaveBlaster(tm) module. Audio Features		
		<ul> <li>Built-in 16-bit 128x Oversampling Sigma-Delta Stereo Codec with 85dB S/N ratio.</li> <li>Built-in 5-channel 16/32 step MPC compatible stereo mixer with master volume, and sample rates up to 48khz stereo.</li> </ul>		

- Dual DMA channel and built-in FIFOs (First in First out) for full duplex simultaneous playback and record in 16-bit stereo.
- Sound Retrieval System (SRS) for 3D sound effects.
- 20 Voice FM synthesis with OPL3.
- MIDI and Game port interface.
- 16-bit CD-quality WAVE audio up to 44.1Khz.
- Built-in MPU-401 MIDI port with FIFOs.
- Joystick and game port timer.
- Silence mode to turn off all audio functions
- Power-down mode for power savings.
- SB-ADPCM and IMA-ADPCM Compression

\* Not available in all configurations.

Document Information KBID# 046966, Last Reviewed: November 11, 1999 Document Path:

### **BCM 540/541 Motherboard Layout**

Service and Support



IRQ Availability

Document Information KBID# 040052, Last Reviewed: November 11, 1999 Document Path:

## **BCM 540/541 User-Accessible Connectors and Jumpers**

Depot	System Board Connectors			
Repair	Name Reference			
Form	T1	(FLOPPY) Floppy disk drive interface		
Direction	JI	header		
Desktops	16 13	(IDE PRI & IDE SEC) IDE Hard disk drive		
Downloads		interface headers		
	J5	Power supply connector header		
Servers	J7	PCI/ISA expansion riser connector		
	J18	(FEATURE) VESA Feature connector		
Frequently	J22	(SPEAKER) PC Speaker connector		
Questions	J17	(WAVE CONN) wavelable upgrade connector		
Handheld	I1 <i>1</i>	(GAME) Game (Joystick) and MIDI port		
PCs	517	connector		
Monitors	J11	(MODEM IN) Modem input/output conn. for Speakerphone		
Notebooks	J10	(CD IN) CD Audio input connector		
PowerMate &	J21	(IR REMOTE) Infrared remote module connector		
a Ready ES	J12	(IRDA) IrDA module connector		
Pro	J8	(FAN) CPU Cooling Fan connector		
Desktops	116	(POWER LED) Front panel Power LED		
Search	510	connector		
Service	RESET	System Reset connector		
Provider	SLEEP	Power management connector		
Locator	HDLED	Hard disk drive activity indicator LED		
UltraCare	Front Panel Connectors	and Jumpers		
Services				
Versa	BF0			
Utilities	75 Mbz			
Windows	100 Mbz			
Update	90 Mhz			
Y2K	ROMREC			
Information	Clear Password ———	Contract process		
		A DESCRIPTION OF THE OWNER OWNER OF THE OWNER OWNER OF THE OWNER		
		💿 📅 🤇		
		Sleen		
		Hard Drive LED		
		Power LED		

– Reset – Speaker



#### Note

Although settings for 150 MHz and 166MHz are listed here, not all configurations will support this configuration. The BF0 jumper must be present to support the 150 and 166 MHz processor speed. The NEC Ready 7022, 9022, 9522, and 9532; Powermate V75, V90, V100, and V133 systems only support up to a 133 MHz Pentium processor.

Document Information KBID# 058617, Last Reviewed: November 11, 1999 Document Path:

# BCM 540/541 Motherboard CPU Upgrade

Depot Repair Form	Caution	ESE mus syste	<u>prec</u> t be c em co	autions abserved	and prope in order to ts.	<u>r handlin</u> o preven	a <u>g procedures</u> t damage to
Direction Desktops	Note This motherboard can accommodate any of the following CPUs						
Downloads	This monoroourd can accommodate any of the following of 05.						
Express5800 Servers	Intel Pentium 75 MHz Intel Pentium 90 MHz Intel Pentium 100 MHz						
Frequently Asked Questions	*Intel Pentium 120 MHz *Intel Pentium 133 MHz *320-Pin Intel Pentium 150 MHz						
Handheld PCs	*320-Pin Intel Pentium 166 MHz						
Monitors	keyboard switch	able.	Disal	ole cache	to slow c	lown the	system.
Notebooks	*Only the the Ready 9600 Series with a processor speed of 120 MHZ or higher shipped with a motherboard capable of this upgrade. These systems will have a BF1 jumper which will allow adjusting the voltage and clock speed to accomodate the faster processors.						
PowerMate							
æ Ready ES Pro							
Desktops Search	Processor Speed	BF0	BF1	75 MHz	100 MHz	90 MHz	JP2 (ATCLK)
Sorvigo	166	On	On	Off	On	Off	2-3
Provider	150	On	On	Off	Off	On	2-3
Locator	133	On	Off	Off	On	Off	2-3
UltraCare	120	On	Off	Off	Off	ON	2-3
Services	100	Off	Off	Off	On	Off	2-3
Versa	90	Off	Off	Off	Off	On	1-2
Utilities	75	Off	Off	On	Off	Off	1-2
Windows Update	Document Information KBID# 058619, Last Reviewed: November 11, 1999						
Y2K Information	Document Path:						

## BCM 540/541 Motherboard RAM Upgrade

Depot Repair Form	Caution ESD precautions and proper handling procedures must be observed in order to prevent damage to system components.			
Direction Desktops	The BCM 540/541 series motherboards have four SIMM sockets configured as two (0-1) banks. The upgrade memory is upgradeable to 128MB. The 72-pin SIMM sockets will accept 1MBx32 (4MB), 2MBx32 (8MB), 4MBx32 (1632MB), and			
Downloads	8MBx32 (32MB) exten	ded data out DRAM SIMMs w	ith the recommended access	
Express5800 Servers	speed of 60ns or faster. This motherboard will accept either single or double sided SIMMs. Memory type, size, and speed can vary between banks, but cannot vary within each 2 societ hank. This series of motherboards will support 36 hit SIMM			
Frequently Asked	modules (parity).			
Questions	The possible memory upgrade configurations are listed.			
Handheld	They can be installed in	any order :		
<b>Monitors</b>	SIMM Type (Amount Bank 0	:) SIMM Type (Amount) Bank 1	Total System Memory	
Notebooks	1M x 32 (4 MB)	Empty	8 MB	
PowerMate	1M x 32 (4 MB)	1M x 32 (4 MB)	16 MB	
& Ready FS	1M x 32 (4 MB)	2M x 32 (8 MB)	24 MB	
Pro Es	1M x 32 (4 MB)	4M x 32 (16 MB)	40 MB	
Desktops	1M x 32 (4 MB)	8M x 32 (32 MB)	72 MB	
Search	2M x 32 (8 MB)	Empty	16 MB	
Service	2M x 32 (8 MB)	1M x 32 (4 MB)	24 MB	
Provider	2M x 32 (8 MB)	2M x 32 (8 MB)	32 MB	
Locator	2M x 32 (8 MB)	4M x 32 (16 MB)	48 MB	
UltraCare Services	2M x 32 (8 MB)	8M x 32 (32 MB)	80 MB	
Versa Utilities Windows	4M x 32 (16 MB)	Empty	32 MB	
	4M x 32 (16 MB)	1M x 32 (4 MB)	40 MB	
	4M x 32 (16 MB)	2M x 32 (8 MB)	48 MB	
Update	4M x 32 (16 MB)	4M x 32 (16 MB)	64 MB	
Y2K	4M x 32 (16 MB)	8M x 32 (32 MB)	96 MB	
Information	8M x 32 (32 MB)	Empty	64 MB	
	8M x 32 (32 MB)	1M x 32 (4 MB)	72 MB	
	8M x 32 (32 MB)	2M x 32 (8 MB)	80 MB	
	8M x 32 (32 MB)	4M x 32 (16 MB)	96 MB	
	8M x 32 (32 MB)	8M x 32 (32 MB)	128 MB	

#### Installing SIMMs

The following is a procedure for installing SIMM modules into a SIMM socket.

#### Step 1:

Line up the SIMM module as illustrated in Figure 2, pin 1 is indicated by a small triangle on the motherboard. Insert the module into the socket at roughly a 45 degree angle. The SIMM module is keyed and can only be inserted one way.

Step 2:

Pivot the SIMM module up until it is at a 90 degree angle in relation to the motherboard. The locking tabs should snap into place when the SIMM is in the proper position as illustrated in Figure 2.





Once the SIMM modules are installed, the system will display the correct amount of memory, since the system automatically detects the amount installed; there are no jumper settings for memory configuration. The memory should be enabled and fully functional.

Document Information KBID# 058620, Last Reviewed: November 11, 1999 Document Path:

## BCM 540/541 Motherboard Cache Upgrade

Depot Repair Form	NEC Ready 7022, 9022, 9522, and 9532 systems shipped standard with 256K Level 2 Pipeline Burst Cache. The cache is not upgradable.			
Direction Desktops	NEC Ready 7610, 7612, 7614, 9600fs, 9616, 9617, 9618, and 9619 systems shipped standard with 256K Level2 Asyncronus cache. The			
Downloads	cache is not upgradable.			
Express5800 Servers	The cache module is a COAST module.			
Frequently Asked Questions	Document Information KBID# 058618, Last Reviewed: November 11, 1999 Document Path:			
Handheld PCs				
Monitors				
Notebooks				
PowerMate & Ready ES Pro Desktops				
Search				
Service Provider Locator				
UltraCare Services				
Versa Utilities				
Windows Update				
Y2K Information				

# BCM 540/541 Motherboard Video Memory Upgrade

Depot Repair Form Direction	The system comes with 1 MB of on-board video DRAM, upgradeable to 2 MB. The standard 1 MB DRAM consists of two 256K by 16 DRAM devices soldered to the system board. The optional 1 MB of DRAM consists of two 256 KB by 16 modules that install in two sockets on the system board. The video memory is upgradable to 2MB using OP-410-15501.			
Desktops Downloads				
Express5800 Servers	Chip Insertion			
Frequently Asked Questions	Pin 1 Marking			
Handheld PCs				
Monitors				
Notebooks	Document Information KBID# 058621, Last Reviewed: November 11, 1999 Document Path:			
PowerMate & Ready ES Pro				
Desktops				
Search				
Service Provider Locator				
UltraCare Services				
Versa Utilities				
Windows Update				
Y2K Information				

# **Interrupt Configuration**

Service and Support

	INTERRUPT	Plug DESCRIPTIO	N
	IRQØ	N/A	TIMER
Depot	IRQ1	NO	KEYBOARD CONTROLLER
Renair	IRQ2	N/A	IRQ FROM SECOND INTERRUPT CONTROLLER
Form	IRQ3	NO	COM2 AND COM4
I'UI III	IRQ4	NO	COM1 AND COM3
	IRQ5	YES	SOUND PORT
Direction	IRO6	NO	FLOPPY DISK CONTROLLER
Desktops	IRO7	NO	PRIMARY LPT
· · · · ·	IRO8	N/A	REAL-TIME CLOCK
Downloads	TRO9	AVATI (DEFAUL	T)UNIESS JUMPER CLOSED FOR VGA RETRACE
F <b>7000</b>	TR010	AVATI	
Express5800	TR011	ΔνΔτι	
Servers	TRO12	NO	ON-BOARD PS/2 MOUSE
Б (1	TRO13	N/A	MATH COPROCESSOR
Frequently	TRO1/	NO	DRTMARY THE HARD DRTVE
Asked		NO	SECONDARY THE HARD DRIVE TE DRESENT ELSE LISER AVATLARIE
Questions	СТОЛТ	NO	SECONDARY IDE HARD DRIVE IF PRESENT, ELSE USER AVAILABLE
<b>Z</b> HOSHOHS			
Handheld	Document Inform	nation	
PCs	KBID# 040447, 1	Last Reviewed: N	ovember 11, 1999
	Document Path:		
Monitors			
Notebooks			
1000000115			
PowerMate			
&			
Roady FS			
Ready ES			
Pro			
Desktops			
Search			
<b>·</b>			
Service			
Provider			
Locator			
UltraCare			
Services			
<b>X</b> 7			
Versa			
Utilities			
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Windows			
Update			
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Y 2K			
Information			

### 540 Main Setup Screen

Service and Support

Note Press <F2> during POST to get into setup. The following setup screens are samples only. Depot Repair PhoenizBIOS Setup - Copyright 1992-94 Phoenix Technologies Ltd. Form Main Advanced Exit Security Power Direction **Desktops** Item Specific Help 14:50:07 ] **Downloads** System Date: 06/02/1997 ] Express5800 Diskette A: 1.44 MB, 3 1/2" ] <Tab>, <Shift-Tab>, or Servers Diskette B: [ Not Installed ] <Enter> selects field. IDE Adapter 0 Master (C: 1674 Mb) 5 Frequently IDE Adapter 0 Slave (None) Þ Asked IDE Adapter 1 Master (CD-Rom) Þ Questions IDE Adapter 1 Slave (None) [ EGA / VGA ] Video System: Handheld Plug and Play OS: [ Auto ] PCs Memory Cache Þ Monitors Memory Shadow Þ Boot Options Þ Notebooks Þ Numlock: [ Auto ] **PowerMate** System Memory: 640 KB & Extended Memory: 15 MB **Ready ES** Pro **Desktops** F9 Setup Defaults F10 Previous Values F1 ESC Change Values Help Select Item Select > Sub-Menu Exit Select Menu Search Service Provider **Document Information** Locator KBID# 040674, Last Reviewed: November 11, 1999 Document Path: UltraCare Services Versa Utilities Windows Update Y2K Information