

Hardware

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WRITTEN BY		July 23, 2024	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

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Chapter 1

Hardware

1.1 Amiga® Hardware Reference Manual: D System Memory Maps

A true software memory map, showing system utilization of the various sections of RAM and free space is not provided, nor possible with the Amiga.

All memory is dynamically allocated by the memory manager at boot time, and the actual locations of system structures may change from release-to-release, machine-to-machine, or boot-to-boot (see the AllocMem() function in the exec.library for more details).

Likewise, Amiga applications are compiled in such a way that they can be dynamically relocated at run time by the system loader.

To find the location of system structures, application software should use the function interface provided in the operating system. If this is not possible then the address of a data structure should be obtained by searching the lists of system structures maintained by Exec. The first step is to fetch the address of the exec.library from location 4; this is the only absolute memory location in the system. All other system data structures are indirectly linked to this base address.

Though a detailed system memory map is not possible, this section does present the general layout of memory areas within the current generation of Amiga computers. To ensure maximum compatibility, avoid relying on the address ranges given here. Instead use the system provided interfaces to ask for the system resources you need.

A1000, A500 and A2000 Memory Map
A3000 Memory Map

1.2 D System Memory Maps / A1000, A500 and A2000 Memory Map

Address Range	Description
-----	-----
00 0000 - 03 FFFF	256K Chip RAM (A1000 Chip RAM, 1st 256K for A500/A2000)

04 0000 - 07 FFFF	256K bytes of Chip RAM (2nd 256K for A500/A2000)
08 0000 - 0F FFFF	512K Extended chip RAM (to 1 MB for A2000).
10 0000 - 1F FFFF	Reserved. Do not use.
20 0000 - 9F FFFF	Primary 8 MB Auto-config space .
A0 0000 - BE FFFF	Reserved. Do not use.
BF D000 - BF DF00 - -	8520-B (access at even-byte addresses only)
BF E001 - BF EF01 - -	8520-A (access at odd-byte addresses only)
The underlined digit chooses which of the 16 internal registers of the 8520 is to be accessed. See Appendix F.	
C0 0000 - DF EFFF	Reserved. Do not use.
C0 0000 - D7 FFFF	Internal expansion (slow) memory (on some systems).
D8 0000 - DB FFFF	Reserved. Do not use.
DC 0000 - DC FFFF	Real time clock (not accessible on all systems).
DF F000 - DF FFFF	Chip registers. See Appendix A and Appendix B .
+--	
E0 0000 - E7 FFFF	Reserved. Do not use.
E8 0000 - E8 FFFF	Auto-config space . Boards appear here before the system relocates them to their final address.
E9 0000 - EF FFFF	Secondary auto-config space (usually 64K I/O boards).
F0 0000 - FB FFFF	Reserved. Do not use.
FC 0000 - FF FFFF	256K System ROM.

1.3 D System Memory Maps / A3000 Memory Map

Address Range	Description
\$0000 0000 - \$001F FFFF	Amiga Chip Memory
\$0020 0000 - \$009F 0000	Zorro II Memory Expansion Space
\$00A0 0000 - \$00B7 FFFF	Zorro II I/O Expansion Space

\$00B8 0000 - \$00BE FFFF	Reserved
\$00BF 0000 - \$00BF FFFF	CIA Ports & Timers
\$00C0 0000 - \$00C7 FFFF	Expansion Memory
\$00C8 0000 - \$00D7 FFFF	Reserved
\$00D8 0000 - \$00DB FFFF	Reserved
\$00DC 0000 - \$00DD FFFF	Memory Mapped Clock
\$00DD 0000 - \$00DE FFFF	SCSI Control
\$00DE 0000 - \$00DE FFFF	Motherboard Resources
\$00DF 0000 - \$00DF FFFF	Amiga Chip Registers
\$00E0 0000 - \$00E7 FFFF	Reserved
\$00E8 0000 - \$0EFF FFFF	Zorro II I/O & Configuration
\$00F0 0000 - \$00F7 FFFF	Diagnostic ROM (Reserved)
\$00F8 0000 - \$00FF FFFF	High ROM (512K)
\$0100 0000 - \$03FF FFFF	Reserved
\$0400 0000 - \$07FF FFFF	Motherboard Fast RAM
\$0800 0000 - \$0FFF FFFF	Coprocessor Slot Expansion
\$1000 0000 - \$7FFF FFFF	Zorro III Expansion
\$8000 0000 - \$FEFF FFFF	Reserved
\$FF00 0000 - \$FF00 FFFF	Zorro III Configuration Unit
\$FF01 0000 - \$FFFF FFFF	Reserved



		HIGH I/O REGISTERS	
		\$DF FFFF	
	\\		Amiga Chips
(continued from above)		\$DF 0000	
			Motherboard
24-BIT ADDRESS SPACE			Resources
(16 MBYTES)		\$DE 0000	
\$00FF FFFF			SCSI Control
		\$DD 0000	
	High ROM		Memory-
\$00F8 0000			mapped
	Diagnostic		clock
	ROM	\$DC 0000	
\$00F0 0000			Reserved
	Zorro II I/O	\$DD 0000	
	and config.		Reserved
\$00E8 0000		\$DA 0000	
	Reserved		Reserved

\$00E0 0000	-----	-	\$D9 0000	-----
	High I/O			Reserved
	registers		\$D8 0000	-----
\$00D8 0000	-----	- - - -		
	Reserved			
\$00C8 0000	-----			
	Ranger RAM			
\$00C0 0000	-----	- - - -		
	Low I/O		\$BF FFFF	-----
	registers			
\$00B8 0000	-----	-		CIA Ports
		\		and Timers
	Zorro II I/O		\$BF 0000	-----
	Expansion	\		Reserved
			\$BE 0000	-----
\$00A0 0000	-----			Reserved
			\$BD 0000	-----
	Zorro II			Reserved
	Memory		\$BC 0000	-----
	Expansion			Reserved
			\$BB 0000	-----
\$0020 0000	-----			Reserved
	Standard		\$BA 0000	-----
	Chip RAM			Reserved
	(Up to		\$B9 0000	-----
	2 MBytes)			Reserved
\$0000 0000	-----		\$B8 0000	-----
		- - -		

Figure D-1: Amiga 3000 Memory Map