

APPLICATION		REVISION			
NEXTASSEMBLY	USED ON	LTR	DESCRIPTION	DATE	APPROVED
	C65	1	PRELIMINARY RELEASE	1-31-91	<i>J. Botts</i>

1.0 DESCRIPTION

This specification describes the requirements for a programmed array logic device (PAL). The PAL consists of Commodore Part Number 390071-03 with IGOR1 programming entered into it. The programmed PAL shall implement System ROM selection, VIC, Cartridge, and Expansion RAM bus arbitration, and various temporary kludges for the current pre-production chipset for the C65. The programmed part shall be Commodore Part Number 390989-01.

2.0 MARKINGS

The PAL shall be marked with the Commodore Part Number and copyright notice as follows: © 1991 CBM.

Commodore P/N	Status	Commodore P/N	Status
390989-01	Active		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES: ANGLES +/- 1 DEGREE 2 PLACE DECIMALS +/- 0.02 3 PLACE DECIMALS +/- 0.010	DRAWN <i>A. Young</i>	DATE 1/31/91	Commodore 1200 WILSON DRIVE WEST CHESTER, PA 19380 (215) 431-9100	
	SYSTEM ENGR. <i>V. Adams</i>	DATE 1/31/91		
	TEST/ENGR.	DATE		
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	CIRCUIT ENGR.	DATE		
	PROD. ASSUR.		SIZE A	DRAWING NUMBER 390989
			SCALE	SHEET 1 of 3

3.0 PAL EQUATIONS

Part No. 390989-01
 Name IGOR1 ; /* C65 ROM control and misc. logic */
 Date 1/5/91;
 Rev 1;
 Designer Paul Lassa;
 Company Commodore;
 Assembly C65;
 Location U22 ;
 Device p1618;
 /* Target PAL Device : 16L8-15 (B-Part) */

/* Latest change: NEW EXPAND & DMA stuff, PCB 2B */

/* INPUTS */

pin 1 = !CDMA; /* cartridge DMA */
 pin 2 = !RDMA; /* Ramexp DMA */
 pin 3 = !SDMA; /* System DMA */
 pin 4 = A17; /* ROM space decode */
 pin 5 = A18; /* ROM space decode */
 pin 6 = A19; /* ROM space decode */
 pin 7 = BCPUCLK; /* Buffered CPUCLK */
 pin 8 = SA22; /* CHIP SELECT for Disk REGS */
 pin 9 = !ROM; /* VIC ROM select */
 pin 11 = RCART; /* RAMEX disable bit (NOXRAM) */
 pin 16 = !CARTEX; /* CARTRIDGE EXPAND */
 pin 17 = !RAMEX; /* RAMEX EXPAND */

/* OUTPUTS */

pin 12 = CART; /* Cartidge MAPPED-IN */
 pin 13 = !DMA; /* CPU disable */
 pin 14 = !VICOFF; /* 470 ohm PULL-UP */
 pin 15 = !ROMEN; /* Enable System ROM */
 pin 18 = !XDMA; /* SYSDMA disable */
 pin 19 = RESV1; /* nothing */

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/* EQUATIONS */

/* SYSROM = (A17 & A18 & !A19 & SA22) & !RAMEX & !CARTEX; */
SYSROM = (A17 & !A18 & !A19) & !RAMEX & !CARTEX; /* temp. */

ROMEN = ((SYSROM & BCPUCLK) # ROM); /* */

/* PULL VICOFF (EXPAND) WHEN ACCESSING SYSROM (shuts off RAM) */
VICOFF = SYSROM # RAMEX # CARTEX;

/* CART = (SDMA # RCART) & SA22 & A19; / Cartridge is mapped in */
CART = (RCART) & A19; /* Cartridge is mapped in */

/* XDMA = CDMA # RDMA; / XDMA to the SYSDMA is cart DMA or ramex DMA */
DMA = CDMA # SDMA; /* (CDMAXDMA) DMA to the CPU is SYSDMA or XDMA */

/* EXPAND.OE = SYSROM - instead of ROMEN */
/* EXPAND = EXPAND # !EXPAND; - DON'T work as well */

3.1 Checksum

Checksum for IGOR1 = 319C.

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