Atari 1090XL Expansion Card Instruction Manual

Version 0.1

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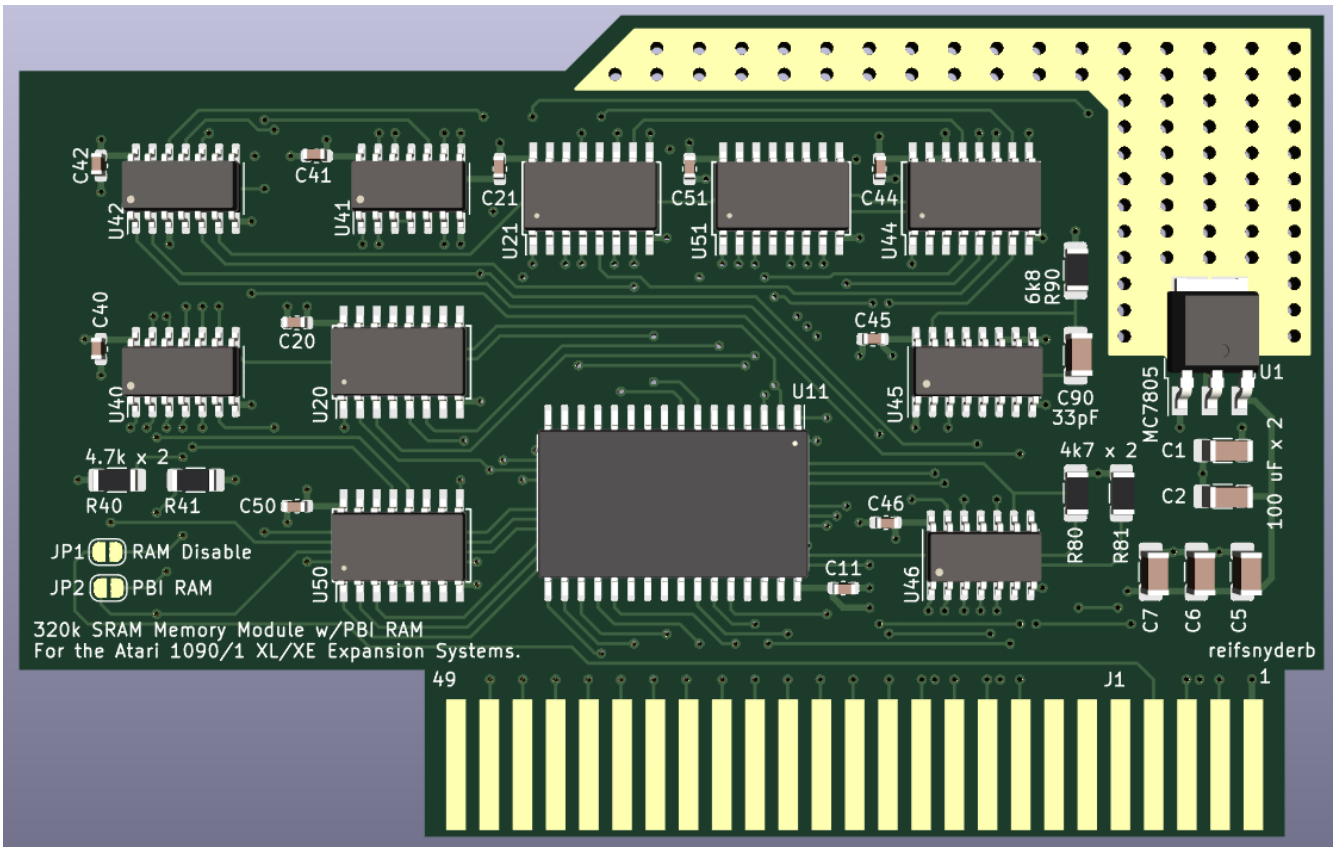
Modern Cards

<u>320k SRAM</u>



Description:

Provides or upgrades the main memory to 64k. 256k of extended memory is provided and is accessible via RAMBO compatible banking. 512 bytes of PBI memory can optionally be supplied as per Atari's PBI memory specifications.

Setting(s):

a. PBI RAM solder jumper

Solder jumper to set card to provide PBI RAM in the region of $D600-$D7FF.

b. RAM Disable solder jumper

Solder jumper to permit other cards to disable memory if so desired.

Note: This capability is only available on the modern remake of the 1090XL. This jumper must be cleared to use this card with an original 1090XL.

Register(s):

a. $D301 (PORTB)

Bit 2	Write	RAM Bank
Bit 3	Write	RAM Bank
Bit 4	Write	Enable (0) or Disable (1) banking
Bit 5	Write	RAM Bank
Bit 6	Write	RAM Bank

80 Column HDMI Video

Description:

Provides an 80 column text only video display when connected to an HDMI monitor. This video display is compatible with software that utilizes Atari's CIO access to the Editor and Screen via the E: and S: device handlers. This card can be disabled by booting with a shift key held down.

Setting(s):

a. Device ID jumper

Set to a unique Device ID. No two installed cards can have the same Device ID.

b. Register(s):

$D1F8

CX-85 Numeric Keypad Interface

Description:

Provides an interface for the CX-85 Numeric Keypad.

Setting(s):

a. Device ID

Set to a unique Device ID. No two installed cards can have the same Device ID.

MIDIcar

Description:

Provides audio and MIDI interfaces with a DreamBlaster daughter board.

Note: Not known if this card was tested when this document was released.

Setting(s):

a. Base

Sets the base address range to either $D1xx or $D5xx

b. Address

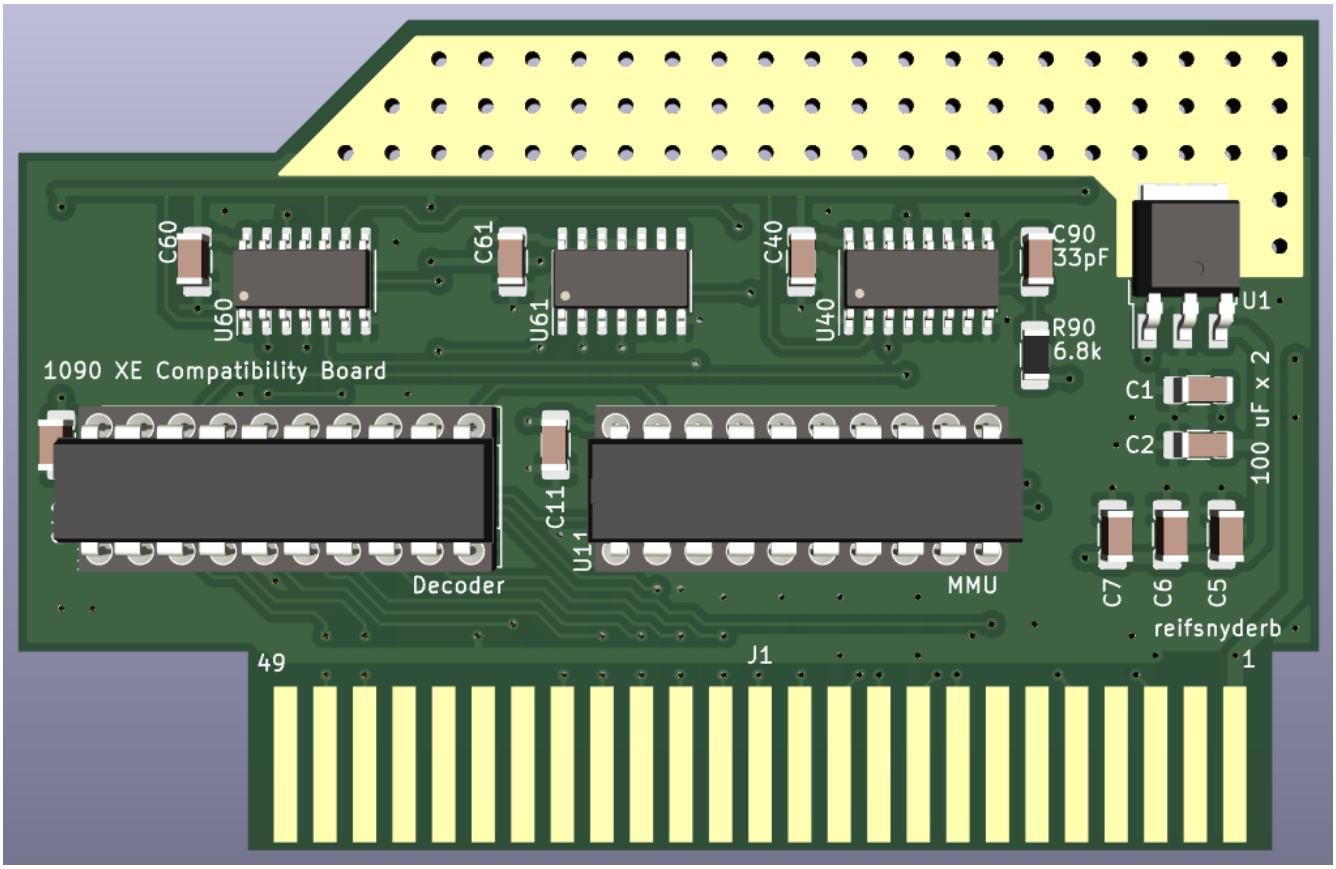
Sets the low address byte. Options include $0x20, $0x40, $0x60, $0x80, $0xA0, or $0xE0.

c. Serial TTL

d. Ext MIDI

Note: If the address (Base/Address) is set with the PBI range ($D1xx), the address of $D1C0 is preferred.

XE Compatibility Card



Description:

This card will only function on a modern remake of the 1090XL and may be required to use memory cards when the 1090XL is connected to an Atari 130XE. This card provides an MMU, on the 1090XL, that provides the missing EXTENB signal not available on a stock Atari 130XE ECI.

Note: On the Atari 130XE ECI, Pin A is not connected and designated as “reserved”. This card is not required if Pin A is connected it to pin 16 of the MMU (U3 / CO61608) so as to provide the missing EXTENB signal.

Setting(s):

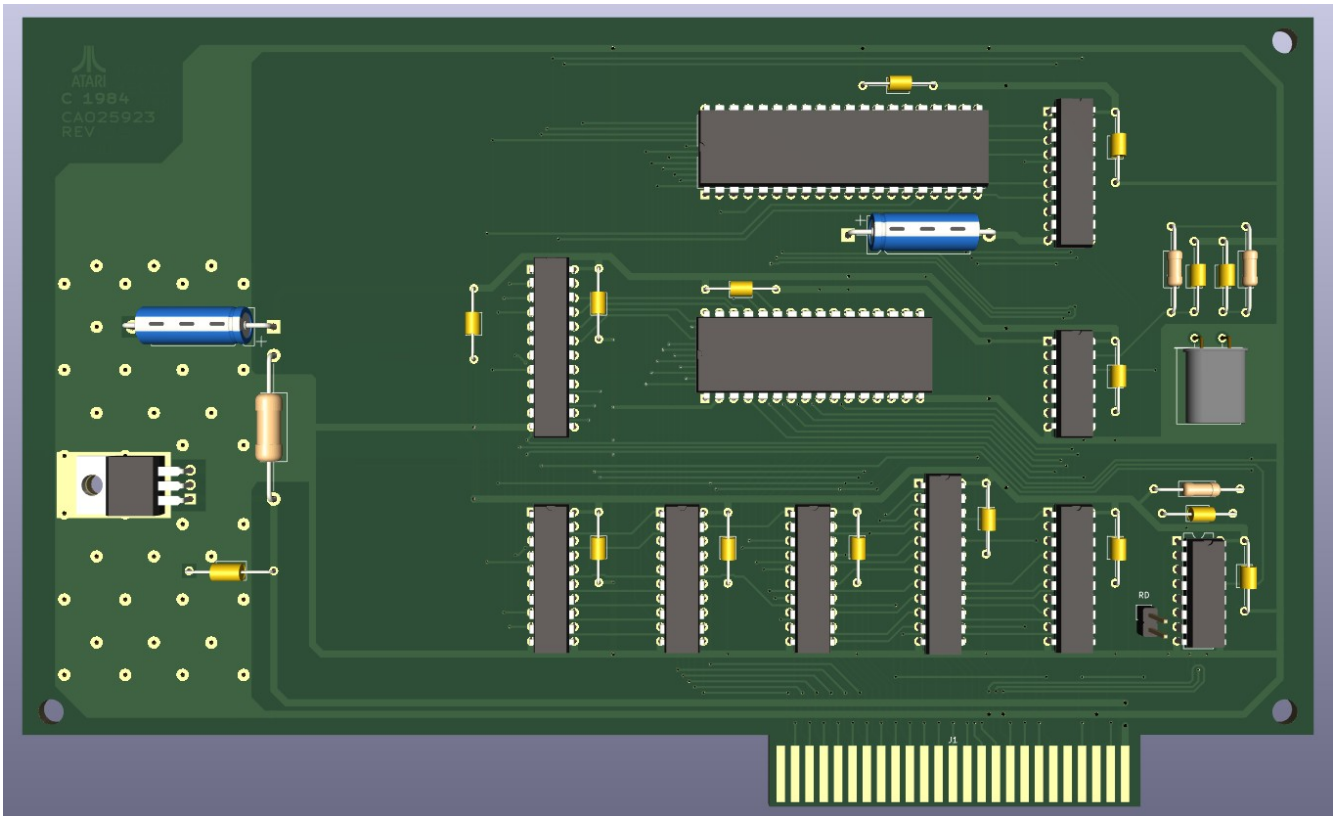
None

Register(s):

a. $D301 (PORTB)

Bit 0	Write	OS Enable (1) or Disable (0) shadow
Bit 1	Write	BASIC Enable (0) or Disable (1) shadow
Bit 7	Write	Self Test Enable (0) or Disable (1) shadow

Z-80 CP/M Card



Description:

Provides a Z-80 CPU and 64k of RAM for the Z-80 CPU. Provides an environment for the CP/M operating system. Requires a CP/M boot disk that contains software to utilize the Atari's I/O devices as well as the CP/M operating system. This card will remain dormant without a boot disk.

Setting(s):

None

Register(s):

a. $D1F0

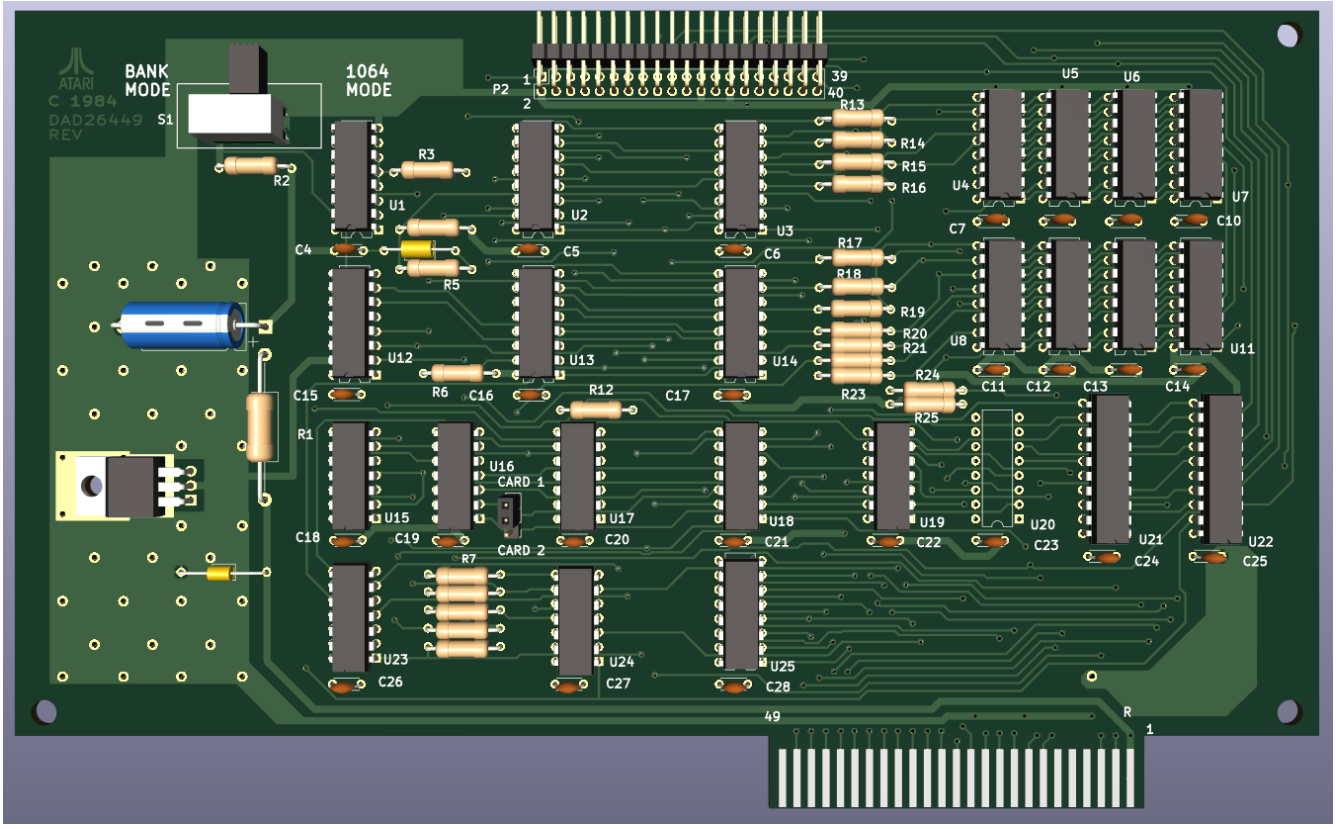
Bit 0	Write	Z80 /RESET
Bit 1	Write	Z80 /INT
Bit 2	Write	Z80 /BUSRQ
Bit 3	Write	Z80 RAM Enable (Active High)
Bit 6	Read	Z80 /BUSAK
Bit 7	Read	Z80 D7 (Service Request)

b. $D1F1 Banking for DMA to Z-80 RAM by 6502 processor.

Bit 0	Write	RAM bank
Bit 1	Write	RAM bank
		00 = bank 0 ($0000 - $3FFF)
		01 = bank 1 ($4000 - $7FFF)
		10 = bank 2 ($8000 - $BFFF)
		11 = bank 3 ($C000 - $FFFF)
Bit 7	Write	Enable (1) or Disable (0) RAM banking.
		RAM is banked at $8000 - $BFFF

Reproduction Cards

<u>64k RAM</u>



Description:

Provides RAM that can either upgrade a 600XL to 64k or be set to bank in 64k of RAM via the $D1FE register. Can provide 256k of RAM with an optional modification. Up to 2 cards can be installed to provide banked memory. A 40 pin connector is also provided so as to utilize this card to supply memory for an optional Z-80 CPU card.

Setting(s):

a. Mode switch

1064 Mode: Provides 48k of memory to upgrade a 600XL to 64k of RAM.
Bank Mode: Sets card to bank memory in at the $4000 - $7FFF address range.

b. Card jumper

If this card is in Bank Mode, this jumper sets the register range used to select it's banks. See the section on "Registers", below.

Register(s):

$D1FE

Memory Bank Address:	$4000-$7FFF	(16384-32767)
Select Bank:	$D1FE, BN*	(53758, BN*)
Deselect Bank:	$D1FE, $80	(53758, 128)

* BN is the Bank Number as follows:

First RAM Card:	$0 - $3	(0 - 3)
Second RAM Card:	$10 - $13	(16 - 19)

Note: Claus Buckholz has determined that a 1066 64k RAM card can handle 256k DRAM chips by connecting pin 1, of U20, to ground and by installing a 74LS153 in the empty U20 socket. With this change, bits 2 and 3, of $D1FE, will become bank select bits resulting in the following bank select table:

First RAM Card:	$0 - $F	(0 -15)
Second RAM Card:	$10 - $1F	(16 - 31)

Additional Notes:

1. In 1064 mode, this card has discovered to be incompatible with other 1090XL cards.

2. This card, in 1064 mode, will not work with an identical card set to Bank Switch mode.

3. This card does not function exactly as described in Atari's documentation. Both due to available pictures and this difference in function, it is believed there was another 64k card created for the 1090XL.

80 Column Video

Description:

Provides an 80 column text only video display when connected to a composite. This video display is compatible with software that utilizes Atari's CIO access to the Editor and Screen via the E: and S: device handlers.

Setting(s):

a. Device ID

Set to a unique Device ID. No two installed cards can have the same Device ID.

Register(s):

a. $D1F8