NOTES:

ATARI 5200 32K PCB FRONT

ATARI 5200 32K PCB BACK

Atari 5200 32K PCB Rev. A

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5200

32K PCB ASSEMBLY

ATARIAGE

PIXELS PAST

FEATURES:

- Supports 32K game ROMs for the Atari® 5200™ SuperSystem
- Uses easily available, off-the-shelf components
- Fits into standard Atari 5200 cartridge cases
- Build new 5200 games without modifying old cartridge circuits

DESCRIPTION:

Pixels Past's Atari 5200 32K PCB (Printed Circuit Board) provides homebrew game authors with an easy method of creating their own videogame cartridges. The PCB, which fits in standard Atari 5200 cartridge cases and works on any Atari 5200 system, supports any 32KB Atari game binary.

The required components are low-cost and available at practically any electronics store and the PCB is easily assembled by anyone with basic soldering skills. The Atari 5200 32K PCB is designed for game developers who do not want to go through the hassle of modifying old cartridge circuit boards. These are brand new boards from Pixels Past (www.pixelspast.com), not recycled boards from old games.

If you'd prefer not to solder the boards yourself, AtariAge (www.atariage.com) provides homebrew services to build and assemble game cartridges. They can also design and produce full-color manuals and labels.

DISCLAIMER:

Pixels Past does not assume any liability arising out of the application or use of any product or circuit described herein. Pixels Past guarantees that the printed circuit boards are electrically tested and meet physical design and manufacturing requirements. Pixels Past warrants to replace any unmodified circuit board proven to be flawed. Pixels Past is not responsible for improper use or placement of components, incorrect soldering techniques, damage to systems, or other assembly or electronics issues. Pixels Past reserves the right to make changes without further notice to any products herein to improve reliability, function, or design.

AtariAge is the exclusive distributor of Pixels Past's PCBs and other homebrew supply products. Please contact AtariAge support (support@atariage.com) for technical assistance and customer service issues.
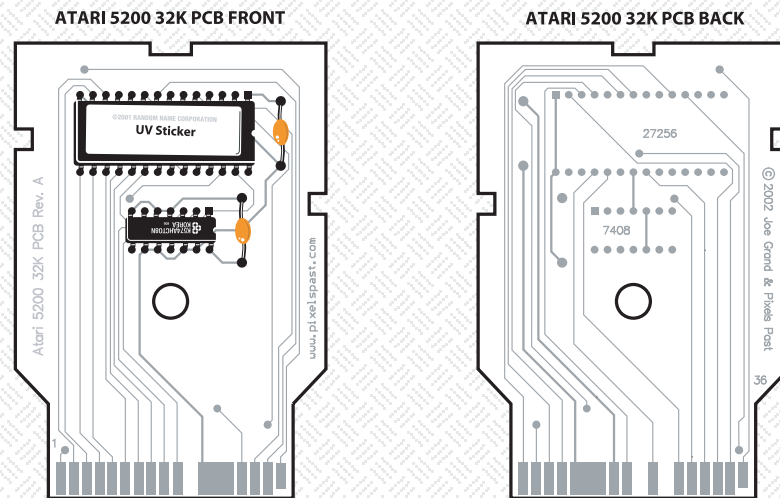
pixels past

AtariAge ATARICART

BILL OF MATERIALS:

The following parts are required to create a functional Atari 5200 game cartridge. All components are available for purchase from AtariAge. Components can also be found at most local electronics stores and large on-line distributors such as Digi-Key (www.digikey.com) or Jameco (www.jameco.com).

DESIGNATOR	PART NUMBER	DIGI-KEY	DESCRIPTION
U1	27256(A)	N/A	EPROM (with game binary) CMOS OK, any speed
U2	74LS08	296-1633-5-ND	Quad 2-input AND logic gate, 14-pin DIP
C1	0.1μF Ceramic	399-1880-1-ND	Bypass capacitor (104), axial leads
PCB	Atari 5200 32K PCB		Pixels Past cartridge PCB

PARTS PLACEMENT:

ATARI 5200 32K PCB FRONT

UV Sticker

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ASSEMBLY INSTRUCTIONS:

Assembly of the Atari 5200 32K PCB is simple, but requires basic soldering skills. The order of parts placement and soldering of the devices onto the PCB is critical.

Pin 1 of the ICs (Integrated Circuits, in this case U1 and U2) is denoted by a square pad on the circuit board. Please refer to the separate Basic Assembly Techniques pamphlet for more information.

1. Insert and solder U1 to the front side of the board. It is recommended that you place a UV-resistant sticker over the EPROM window to prevent accidental erasure of the code stored in the device.

2. Insert and solder U2 to the front side of the board.

3. Insert C1 and solder it into place. C1 should be a small-footprint axial leaded device in order to fit properly onto the circuit board and into the cartridge housing.

4. Insert C2 and solder it into place. C2 should be a small-footprint axial leaded device in order to fit properly onto the circuit board and into the cartridge housing.

THE COMPLETED, ASSEMBLED CIRCUIT BOARD SHOULD RESEMBLE THE IMAGES BELOW:

ATARI 5200 32K PCB FRONT

U1 C1

U2 C2

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ATARI 5200 32K PCB BACK

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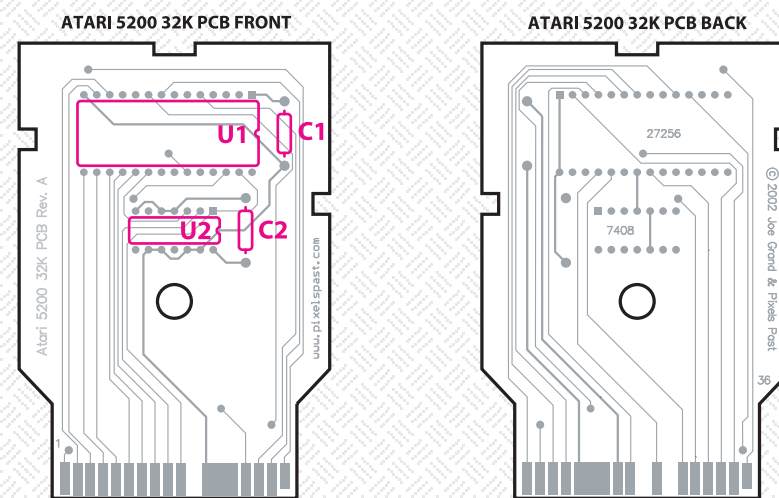
THEORY OF OPERATION:

The Atari 5200 SuperSystem was designed to support up to a 32KB game cartridge without special circuitry. An original 32KB cartridge consisted of 2 separate 16KB ROM (Read-Only Memory) devices to store the game program. Two active-low chip-select lines (/Y1, pin 10 and /Y2, pin 9) from the Atari 5200 are used to enable the first 16K or second 16K memory device.

The Pixels Past Atari 5200 32K PCB uses a single EPROM (Erasable Programmable Read-Only Memory, which are erasable with UV light and reprogrammable), which has a single active-low Chip Enable (/CE) line, to store the game program code. A single gate inside U2 is used to "merge" the /Y1 and /Y2 lines into a valid /CE signal usable by the EPROM.

Both C1 and C2 serve as bypass/decoupling capacitors to help reduce electrical noise on the power supply line coming from the Atari 5200 system.

The circuit will function without C1 and C2, but voltage spikes could cause irregularities in cartridge operation, so installation is highly recommended.

If desired, the Pixels Past Atari 5200 32K PCB can support 16KB games and 27128(A) EPROMs with three simple board modifications. Because the modifications void the warranty of the Pixels Past PCB, they are not detailed in this data sheet. Please contact support@atariage.com for more information.

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