

Massachusetts Institute of Technology
Department of Electrical Engineering and Computer Science
6.111 - Introductory Digital Systems Laboratory

Project Resources

Project resources are allocated on a per student basis. This means that a two-person project has twice the resources that an individual project has, etc. You have already been issued a kit and a quantity of ICs. The following items are available on an individual sign-out basis. Note that the quantities listed must suffice for the entire class.

| Quantity | Item |
|----------|---|
| 200 | Proto-boards which do not have switches, lights, or power supplies. Suitable 5 volt power supplies are mounted on the lab benches. Each proto-board will hold about one-half the number of ICs that can be mounted on your kit. |
| 100 | 50 pin 3M ribbon cables for kit to kit connections |

The following items may have to be shared. Cables for the TVs must be signed out and returned daily.

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|----|---------------------------------------|
| 14 | Monochrome TV Monitors with BNC cable |
| 15 | Color TV Monitors with cable |
| 15 | Speakers (with built in amplifier) |
| 8 | Microphones |
| 2 | Television Cameras with sync inputs |
| 6 | Stepper Motors |

The following items may be signed out from the instrument room. Data sheets are available from the instrument room.

| | | |
|-----|----------|-----------------------------|
| 30 | AD775 | Flash A to D Converter |
| 50 | LM386 | Low Power Audio Amplifier |
| 50 | | 10 Mhz Crystal Oscillator |
| 30 | MC6847 | Video Display Generator |
| 30 | | 3.575945 MHz Crystal |
| 50 | | 2K Pot |
| 15 | AY 1015D | UART |
| 50 | | LED Assembly |
| 150 | | HEX LED |
| 6 | AM25S557 | High Speed 8 x 8 Multiplier |

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|--------|----------------|---|
| 14 | AM25S558 | High Speed 8 x 8 Multiplier |
| 30 | AM29C509DC | High Speed 12 x 12 Multiplier Accumulator |
| 1 | 6850 | Asynchronous Communications Interface Adapter |
| 30 | 6N138 | Opto-isolater plus 1N914 diode |
| 10 | | 5-pin DIN cables (female cable to wires) |
| small | Misc. | Crystal Oscillator |
| 10 | 28F256A | FLASH Memory |
| 15 | Am28F010 | 131,072 x 8-Bit CMOS Flash Memory |
| 20 | Am28F020 | 262,144 x 8-Bit CMOS Flash Memory |
| 20 | Am28F512 | 65,536 x 8-Bit CMOS Flash Memory |
| 26 | 6116-3 | 2K by 8 SRAM |
| 8 | 6264-15 | 8K by 8 SRAM |
| 26 | 62256-12 | 32K by 8 SRAM |
| 20 | 22V10 PAL | |
| 20 | 16V8 PAL | |
| 75 | 20V8 PAL | |
| 25 | MAXIM 233 | RS 232 level converter |
| 11 | Am29C517APC | 16 bit multiplier |
| 25 | 54ACT/74ACT715 | Programmable Video Sync Generator |
| 6 | GS4981 | Monolithic Video Sync Separator |
| 4 | CD22204 | Harris 5V Low Power Subscriber DTMF Receiver |
| 30 | AD8402/3 | Dual/Quad Digital Pot |
| in kit | CY7C374i | CPLD |
| in kit | FLEX10K | Altera gate array board |
| 10 | P9931 | small speaker/microphone |

The following items are in cabinets in the digital lab. Please let the staff know if the stock of parts is low. Please send an email to 6.111staff@mit.edu. Data sheets are available from the instrument room.

| | | |
|-------|-------------|--|
| 50 | 741 | Op Amp |
| 25 | LF357 | Op Amp |
| 25 | LM311 | Comparator |
| 50 | AM26LS32 | Line Receiver (Comparator) |
| 25 | AD558JN | D to A Converter |
| 50 | AD670JN | A to D Converter |
| 50 | 898-1-R5.1K | (or 898-1-R4.7K) resistor pack |
| small | | misc. resistors and capacitors- in another cabinet |
| 100 | 74LS00 | Quad 2-input NAND gate |
| 75 | 74LS02 | Quad 2-input NOR gate |
| 75 | 74LS03 | Quad 2-input NOR open collector gate |
| 160 | 74LS04 | Hex inverter |
| 100 | 74LS08 | Quad 2-input AND gate |
| 120 | 74LS10 | Triple 3-input NAND gate |

| | | |
|-----|---------|---|
| 50 | 74LS14 | Hex Schmitt Trigger INVERTER |
| 50 | 74LS20 | Dual 4-input AND gate |
| 50 | 74LS30 | 8-input NAND gate |
| 50 | 74LS32 | quad 2-input OR gate |
| 50 | 74LS37 | quad 2-input NAND buffer |
| 50 | 74S38 | quad 2-input NAND open collector gate |
| 25 | 74LS42 | BCD to Decimal decoder |
| 100 | 74LS47 | BCD to 7-segment decoder driver |
| 150 | 74LS74 | dual D flip flop |
| 150 | 74LS85 | 4-bit comparator |
| 50 | 74LS86 | quad 2-input XOR gate |
| 50 | 74LS107 | dual JK flip flop with clear |
| 50 | 74LS112 | dual JK flip flop with preset and clear |
| 50 | 74LS123 | dual retriggerable monostable |
| 75 | 74LS126 | quad tri-state non-inverting buffer |
| 50 | 74LS133 | 13-input NAND gate |
| 75 | 74LS138 | 3 to 8 decoder |
| 75 | 74LS139 | dual 2 to 4 decoder |
| 50 | 74150 | 16 to 1 multiplexor |
| 150 | 74LS151 | 8 to 1 multiplexor |
| 100 | 74LS153 | dual 4 to 1 multiplexor |
| 150 | 74LS157 | quad 2 to 1 multiplexor |
| 300 | 74LS161 | binary 4-bit counter with direct clear |
| 500 | 74LS163 | binary 4-bit counter with synchronous clear |
| 100 | 74LS169 | 4-bit up/down counter |
| 100 | 74LS175 | quad D edge triggered FF with clear, Q, /Q |
| 50 | 74LS181 | 4-bit ALU |
| 25 | 74LS193 | binary dual clock up/down counter with clear |
| 100 | 74LS194 | 4-bit bidirectional shift register |
| 300 | 74LS244 | Octal tri-state non-inverting buffer |
| 100 | 74LS245 | Octal tri-state bidirectional bus buffer |
| 200 | 74LS257 | quad 2 to 1 tri-state multiplexor |
| 100 | 74LS259 | 8-bit addressable latch (positive output decoder) |
| 150 | 74LS273 | Octal D edge triggered flip flop with clear |
| 100 | 74LS283 | 4-bit adder |
| 100 | 74LS367 | Hex tri-state non-inverting buffer |
| 100 | 74LS368 | Hex tri-state inverting buffer |
| 75 | 74LS373 | Octal D tri-state latch |
| 100 | 74LS374 | Octal D edge triggered tri-state flip flop |
| 200 | 74LS377 | Octal D edge triggered flip flop with enable |
| 100 | 74LS393 | dual 4-bit binary counter |
| 100 | 74LS399 | quad 2-input multiplexors with storage |
| 25 | 74LS670 | 4 by 4 register file |
| 60 | 1408 | DAC |