

Embedded System Design Parts Kit Contents F2009

Part Description	Quantity	Unit Price	Amount	Suggested Use	Location
Printed Circuit Board	1	\$15.00	\$15.00	Base Board (standard)	Big bag
16x4 LCD with HD44780 Compatible Controller	1	\$7.00	\$7.00	User Display	Big bag
40-Pin Wire Wrap DIP Socket	1	\$2.50	\$2.50	Microcontroller	Small bag 1
28-Pin Wire Wrap DIP Socket	2	\$1.50	\$3.00	NVRAM or EPROM and SRAM	Small bag 1
20-Pin Wire Wrap DIP Socket	4	\$1.25	\$5.00	74245, 74373, 74374, SPLD, Pull-ups	Small bag 1
16-Pin Wire Wrap DIP Socket	3	\$1.00	\$3.00	MAX232, I2C Expander, Decoding Logic	Small bag 1
14-Pin Wire Wrap DIP Socket	2	\$0.75	\$1.50	Discrete logic and components	Small bag 1
8-Pin Wire Wrap DIP Socket	1	\$0.50	\$0.50	Serial EEPROM	Small bag 1
Pin Strip Socket, Single Row, 14 Contacts	1	\$1.75	\$1.75	Solder into LCD to mate with pin strip header	Small bag 1
Pin Strip Header, Single Row, 36 Contacts	1	\$1.75	\$1.75	14 for LCD, 8/9 for RS-232, others for jumpers	Small bag 1
Aluminum Standoff, Female, 6-32	4	\$0.50	\$2.00	Board Support (top)	Small bag 1
Aluminum Standoff, Male/Female, 6-32	4	\$0.50	\$2.00	Board Support (bottom)	Small bag 1
DE-9 Serial Connector	1	\$1.00	\$1.00	RS-232	Small bag 1
TO-220 Heat Sink	1	\$0.50	\$0.50	7805T +5V Regulator	Small bag 1
2.1mm Male Power Connector	1	\$1.25	\$1.25	Power Jack	Small bag 1
Toggle Switch, SPST or SPDT	1	\$1.25	\$1.25	Master Power On/Off Switch	Small bag 1
T44 Wire Wrap Pins	20	\$0.10	\$2.00	Discrete Component Mounting	Small bag 2
Pushbutton Switch, Momentary	4	\$0.25	\$1.00	Reset Circuit, Digital Input, FLIP Programming	Small bag 2
Jumper	5	\$0.10	\$0.50	Atmel processor Flash programming, etc.	Small bag 2
7805T +5V Regulator, TO-220 Package	1	\$0.25	\$0.25	Power Supply	Small bag 2
11.0592 MHz Crystal	1	\$0.80	\$0.80	Microcontroller Clock Source	Small bag 2
27 pF Capacitor	3	\$0.05	\$0.15	Oscillator Circuit	Small bag 2
47 uF Electrolytic Capacitor	2	\$0.10	\$0.20	Power Supply Decoupling	Small bag 2
10 uF Electrolytic Capacitor	2	\$0.10	\$0.20	Reset Circuit, Power Supply Decoupling	Small bag 2
0.1 uF Monolithic Ceramic Capacitor	10	\$0.05	\$0.50	Board Decoupling	Small bag 2
1.0 uF Monolithic Ceramic Capacitor	5	\$0.10	\$0.50	MAX232 Charge Pump (5x1.0uF)	Small bag 2
4.7 uF Monolithic Ceramic Capacitor	2	\$0.20	\$0.40	8051 Processor Decoupling	Small bag 2
Diode, 1N4003 (1 Amp)	5	\$0.05	\$0.25	Voltage Regulator Protection	Small bag 2
Diode, 1N914 or 1N4148	1	\$0.05	\$0.05	Reset Circuit	Small bag 2
10K 1/4W Resistor	1	\$0.05	\$0.05	Reset Circuit	Small bag 2
4.7K (or 2.7K) Pull-up Resistors, 10-pin SIP	2	\$0.25	\$0.50	80C51 Port 0 Pullups, 74156 Pull-ups	Small bag 2
330 Ohm 1/4W Resistor	5	\$0.05	\$0.25	Current Limiting (LEDs, reset switch)	Small bag 2
5.1K Ohm 1/4W Resistor	2	\$0.05	\$0.10	EEPROM Control Line Pull-ups	Small bag 2
Potentiometer	1	\$0.75	\$0.75	LCD Contrast Control	Small bag 2
LED, Red	2	\$0.10	\$0.20	General Status Indicator	Small bag 2
LED, Green	2	\$0.10	\$0.20	General Status Indicator, Power On	Small bag 2
2N2222 NPN Transistor, TO-92	2	\$0.15	\$0.30	LED Driver, General Purpose	Small bag 2
2N2907 PNP Transistor, TO-92	2	\$0.15	\$0.30	LED Driver, General Purpose	Small bag 2
74LS373, Transparent Latch, Tri-state, DIP-20	1	\$0.40	\$0.40	Address Latch	Narrow tube
74LS374, Octal D Flip-Flop, Tri-state, DIP-20	1	\$0.40	\$0.40	General Purpose, LED Driver, Status	Narrow tube
MAX 232, RS-232 Line Driver/Receiver, DIP-16	1	\$1.25	\$1.25	RS-232	Narrow tube
24C16 Serial EEPROM, DIP-8	1	\$0.75	\$0.75	User Data Storage (non-volatile)	Narrow tube
PCF8574 I2C Expander, DIP-16	1	\$1.50	\$1.50	GPIO Expansion via I2C bus	Narrow tube
Atmel ATF16V8C SPLD, DIP-20	1	\$2.00	\$2.00	Programmable Logic	Narrow tube
80C31/80C51/80C32/C501, DIP-40	1	\$1.00	\$1.00	Microcontroller	Wide tube
Atmel AT89C51RC2, DIP-40	1	\$7.00	\$7.00	Microcontroller	Wide tube
32KB NVRAM, DIP-28	0	\$15.00	\$0.00	Variable/Data Storage	Tool kit (sign out)
28-Pin ZIF (Zero Insertion Force) Socket	0	\$8.00	\$0.00	NVRAM/EPROM	Tool kit (sign out)
Wire Wrap Wire (30AWG Kynar, 1 foot unit)	100	\$0.05	\$5.00	Signal and Power Connections	2B37 Lab
74LS00, Quad 2-input NAND, DIP-14	0	\$0.25	\$0.00	General Purpose, Decoding	2B37 Lab
74LS02, Quad 2-input NOR, DIP-14	0	\$0.25	\$0.00	General Purpose, Decoding	2B37 Lab
74LS08, Quad 2-input AND, DIP-14	0	\$0.25	\$0.00	Generation of READ* Signal	2B37 Lab
74LS21, Dual 4-input AND, DIP-14	0	\$0.25	\$0.00	General Purpose, Decoding	2B37 Lab
74LS138, 3-8 Decoder, DIP-16	0	\$0.25	\$0.00	Peripheral Decoding	2B37 Lab
74LS156, Dual 2-4 Decoder, O.C., DIP-16	0	\$0.25	\$0.00	Peripheral Decoding	2B37 Lab
74LS245, Octal Transceiver, Tri-state, DIP-20	0	\$0.40	\$0.00	Peripheral Buffer or Data Bus	2B37 Lab
SMT Soldering Kit	0	\$24.95	\$0.00	SMT and Flash CPU Programming Tutorial	Spark Fun

Total Item Value

\$77.55 **Note: Student Cost for Parts Kit is \$70.00**

Students may sign out an accessory/tool kit containing the following items:

Wire wrap tool, power supply, cutters, pliers, serial cable, digital logic probe, floppy diskette, NVRAM, 28-pin ZIF socket (for NVRAM/EPROM)

Students are financially responsible for any items they sign out.

Resistors, caps, wire wrap wire, and some small parts are available in the laboratory.

Note: There may be a few part substitutions, depending on availability.

Faster processors, NVRAMs, parallel EEPROMs, PCBs, and perf boards may also be available for purchase.