SBC6120/FP6120 Part List **Rev. 2a 3/30/15** Comments and corrections welcome: Steve Lafferty, steve@tronola.com

This is a list of parts you need to order to complete the SBC6120/FP6120 partial kit offered by Spare Time Gizmos.
The notes can be safely ignored, if all you want to do is order the parts for the SBC6120/FP6120 kit. Please read the notes (and manual!) before assembly, though--some parts need mods.

Reference	Qty	In Kit?	SBC/FP	Manufacturer	Part No.	Supplier	Stock No.	Description	Notes
C8	1	N	FP	AVX	TAP107K006SCS	Mouser	581-TAP107K006SCS	capacitor 100uf 6.3V tantalum cap	(Note-9)
D1	1	N	FP	Vishay Semi	1N5820	Digi-Key	1N5820GICT	diode Schottky 3A 20V DO-201	
D2	1	N	FP	ON Semi	1N5339BG	Digi-Key	1N5339BGOS-ND	diode Zener 5.6V 5% 5.0W T-18	
	1	Y	FP	STG	FP6120-FPK			faceplate FP6120 Kit	
FB1, FB2	2	N	FP	Panasonic	EXC-ELSA35	Digi-Key	P9820BK-ND	ferrite Bead (0.400" Lead spacing)	
	26	N	FP	Keystone	1560A	Mouser	534-1560A	hardware 4-40 swage solder in stand offs, 0.125" high, 0.250" diam	(Note-12)
	8	N	FP			hardware store		hardware lockwasher #4	(Note-20)
	5	N	FP	Keystone	9327	Mouser	534-9327	hardware screw nylon #4-40 3/8" for SBC mounting	Another (5) needed for IOB. (Note-14)
	8	N	FP			hardware store		hardware screw steel 4-40 x 1/4"	(Note-20)
	7	N	FP	Keystone	9503	Mouser	534-9503	hardware screw steel flathead #4-40 5/8" for LED bar	Added
	4	N	FP		SM3X12MM-2701	Mouser	608-SM3X12MM2701-BL	hardware screw steel M3 x 12mm for mounting CF/IDE adapter	Added (Note-15)
	5	N	FP	Keystone	4802	Digi-Key	4802K-ND	hardware spacer nylon M/F #4-40 1/2" between FP/SBC	Another (5) needed for IOB.
J5	1	N	FP	3M	929850-01-02-RA	Mouser	517-929850-01-02-RA	header 2 pin female (see section 2.5.4)	Mates with SBC board J10
J4	0	N	FP					header 2 pin male (see section 2.5.4)	Long WW pins mate with IOB. Install with IOB6120.
J2	1	N	FP	Samtec	ESQ-125-14-G-D	(Note-1)		header 50 pin female, stackable	Not used unless IOB6120 is added. Updated part.
J1	1	Y	FP	Samtec	ESQ-125-14-G-D	STG		header 50 pin female, stackable	Connector to SBC board. Updated part.
U7	1	Y	FP	Atmel	ATF22V10B15PC	Arrow		IC CMOS PLD (Flash)	Programmed as CONTROL or CTL
U13	1	Y	FP	Atmel	ATF16V8B15PC	Arrow		IC CMOS PLD (Flash)	Programmed as DECODE or DEC
U8	1	N	FP		TLC555CP	Mouser	595-TLC555CP	IC CMOS Timer	Similar to 7555
U3, U4	2	N	FP	Texas Instruments	74HC174	Mouser	595-SN74HC174N	IC Hex D flip-flop	
U5, U6, U9, U10	4	N	FP	Texas Instruments	74HC366 or 368	Mouser	595-CD74HC366E	IC Hex Tri-State Inverting Buffer	
J3	1	N	FP	CUI Stack	PJ-102AH	Digi-Key	CP-102AH-ND	Jack PCB Mount 2.1 x 5.5mm High Current	(Note-4)
	1	N	FP	Keystone	8555	Digi-Key	8555K	knob, round 0.7" diameter	Costs $6.71. consider cheaper ones.
MD0-11, MA0-11, EMA0-3	28	N	FP	Lumex	SSL-LX5093ID	Mouser	696-SSL-LX5093ID	LED red T1-3/4, with flange, 60deg, 40mcd, 635nm	Original obsolete. Sub improved.
REG1	1	N	FP	Murata	78SR-5/2-C	Digi-Key	811-1119-ND	module 5V 2A Switching Regulator 3 pin SIP	Modify per Note-5
	1	Y	FP	STG	FP6120-1D			PCB FP6120 PC board, revision E	
F1	1	N	FP	Littelfuse	0473002.MRT1L	Digi-Key	F2342CT-ND	picofuse 2A	New part numbers
P1	1	N	FP	Valuepro	PL-007	Jameco	138587	plug DC right-angle 2.1 x 5.5mm female	Added. (Note-11)
R1	1	N	FP	Vishay Dale	CMF5010K000FHEB	Digi-Key	CMF10.0KQFCT-ND	resistor 10.0K 1% 1/8W	5% okay. Original obsolete.1/4W sub fits.
R2	1	N	FP	Vishay Dale	CMF5017K400FHEB	Digi-Key	CMF17.4KQFCT-ND	resistor 17.4K 1% 1/8W	18K 5% okay. Original obsolete.1/4W sub fits.
RP1, RP2	2	N	FP	Bourns	4310R-101-331LF	Digi-Key	4310R-1-331	resistor SIP pack 330 ohm 10 Pin	(Note-13)
RP3, RP4	2	N	FP	Bourns	4308R-101-331LF	Digi-Key	4308R-1-331	resistor SIP pack 330 ohm 8 Pin	(Note-13)
RP7	1	N	FP	Bourns	4310R-101-472LF	Digi-Key	4310R-1-472	resistor SIP pack 4.7K ohm 10 pin	
RP8	1	N	FP	Bourns	4306R-101-472LF	Digi-Key	4306R-1-472	resistor SIP pack 4.7K ohm 6 pin	
RP5, RP6	2	N	FP	Bourns	4308R-101-472LF	Digi-Key	4308R-1-472	resistor SIP pack 4.7K ohm 8 Pin	
	1	N	FP	Valuepro	6100-8-R	Jameco	51626	socket DIP machined 8 Pin	
	1	Y	FP	STG	FP6120-LBK			spacer Bar FP6120 LED Aligner Kit	
ROTSW	1	N	FP	Lorlin	10WA346	Mouser	10WA346	switch 3 pole 4 position PCB mount rotary	Cut shaft to about 0.4" from threaded sleeve.
	7	Y	FP	C&K	7108J60V6BE1			switch SPDT PCB mount paddle ON-NONE-MOM	
	13	Y	FP	C&K	7101J60V6BE1			switch SPDT PCB mount paddle ON-NONE-ON	
S1, PLOCK	2	N	FP	C&K	T101MH9ABE	Digi-Key	CKN1067	switch SPDT Tiny Toggle PCB Mount Right Angle	(Note-2)
C2	1	N	FP			Digi-Key	399-1906	UNUSED capacitor 0.01uF 10VDC Mono ceramic	
PS1	1	N	FP	Reliapro	DDU120100Z7974	Jameco	100870	wall transformer, 12VDC, 1A 2.1 5.5mm fem center-positive	Added. Modify per Note-11.
W1	1	N	SBC	Startech	IDE66	Newegg	N82E16812200039	40-pin IDE cable female/female 18"	Added
AD2	1	N	SBC	Kinamax	ADP-IDE23	Newegg	N82E16812203012	44-pin to 40-pin IDE adapter cable with power connector	Added (Note-16)
AD1	1	N	SBC	Syba	SD-ADA45006	Newegg	N82E16812186098	Adapter CF to IDE with 2.5" disk drive mounting holes	Added
	1	N	SBC	Assmann	AK319-.2-R	Digikey	AE9885-ND	cable power disk drive Y-adapter for parts	Added (Note-16)
AD3	1	N	SBC	Cables To Go	03044	Newegg	N82E16812196265	cable, DB9 female to DB9 female null modem adapter	Added. Connects AD2 to PC serial port or a terminal port
AD2	1	N	SBC	Startech	PNL9M16	Newegg	N82E16812400022	cable, IDC-10 female to DB9 male adapter	Added. Adapts serial port header to DB9. (Note-19)
CF1	1	N	SBC	Transcend	TS1GCF80	Newegg	9SIA1K60EW7941	Compact Flash (CF) card	Added (Note-17)
D1	1	N	SBC		1N4734	Jameco	36118	diode Zener 6.0V 500mW DO-41	New stock number
J3	1	N	SBC	3M	2510-5002	Digi-Key	MHD10K	header 10 pin low profile right angle shrouded	RS232 connector
J10	1	N	SBC	On Shore Tech	PH1-787/120-041	Jameco	2120276	header 2-pin wire-wrap connector above SBC board	(Note-8)
J1	1	N	SBC	Molex	15-24-4441	Mouser	538-15-24-4441	header 4 pin right angle male	Power connector Original obsolete (Note-3)
J2	1	N	SBC	3M	2540-5002	Digi-Key	MHD40K	header 40 pin low profile right angle shrouded	IDE connector
J4	1	Y	SBC	Samtec	ESQ-125-14-G-D	STG		header 50 pin female, stackable	Expansion connector updated part
U5	1	Y	SBC	Harris	HD6120			IC 12 bit microprocessor	
U15	1	N	SBC	Texas Instruments	74HC4040	Mouser	595-SN74HC4040N	IC 12 stage binary ripple counter	
U9, U10	2	Y	SBC		27C256	Jameco	39845	IC 32K x 8 CMOS EPROM (250ns)	Programmed as "LOW, HIGH"
U99	1	N	SBC	Dallas Semi	DS1233D-10	Mouser	700-DS1233D-10	IC 5V EconoReset TO-92 package 10% threshold	

U8, U7, U6	3	Y	SBC	Hitachi	HM6208HP			IC 64K x 4 static RAM	supplied as MB81C84
U4	1	Y	SBC	Atmel	ATF16V8B15PC	Arrow		IC CMOS PLD (Flash)	Programmed as MEM
U12, U11	2	Y	SBC	Atmel	ATF22V10B15PC	Arrow		IC CMOS PLD (Flash)	Programmed as IOT1,2
U18	1	N	SBC		82C55A-5	Jameco	52425	IC CMOS Programmable Peripheral Interface (5MHz)	
U16	1	N	SBC		HD6402	Jameco	43158	IC CMOS UART	
U17	1	N	SBC	Maxim	MAX232CPE	Jameco	24811	IC Dual +5V only RS-232 transmitter/receiver	
U21	1	N	SBC	Texas Instruments	74HC175	Mouser	595-SN74HC175N	IC quad D flip-flop	
U24	1	N	SBC	Texas Instruments	74HC04	Mouser	595-SN74HC04N	IC Hex inverter	
U13	1	N	SBC	Texas Instruments	74HC365	Mouser	595-SN74HC365N	IC Hex tri-state buffer	
U14	1	N	SBC	Texas Instruments	74HC245	Mouser	595-SN74HC245N	IC Octal tri-state buffer	
D2	1	N	SBC	Dialight	555-4403F	Digi-Key	350-1798-ND	LED quad indicator with integral resistors for POST code	New stock number
U23	1	N	SBC	CTS Reeves	MXO45HS-3C-4M9152	Digi-Key	CTX763-ND	oscillator 4.9152 MHz half size clock	Insulate top if socketed. CTX156 not stocked.
U1	1	N	SBC	CTS Reeves	MXO45HS-3C-5M0000	Digi-Key	CTX746-ND	oscillator 5.0000 MHz half size clock	Insulate top if socketed. CTX-157 not stocked. (Note-18)
	1	Y	SBC	STG	SBC6120-2D			PCB SBC6120 REV D PC Board	
F1	1	N	SBC	Littelfuse	0473.500MAT1L	Digi-Key	F1968CT-ND	picofuse 0.5A	New stock/part numbers
R6	1	N	SBC	Stackpole	CF18JT4K70	Digi-Key	CF18JT4K70CT-ND	resistor 4.7K 5% 1/8W	(Note-10)
	2	N	SBC	Valuepro	6100-28	Jameco	40328	socket DIP machined 28 Pin 0.6" width	
	3	N	SBC	Valuepro	6100-40D	Jameco	41136	socket DIP machined 40 Pin 0.6" width	
	2	N	SBC	Valuepro	240434	Jameco	676385	socket half-DIP machined 4 pin for oscillator	Added
S1	1	N	SBC	Valuepro	G1B210-R	Jameco	71643	switch PC mount right angle push button	Direct substitute
C1-C22 FP:C9-C16, C18-C21	34	N	SBC/FP	Kemet	C320C104K5R5TA	Mouser	80-C320C104K5R	capacitor 0.1uF 50V mono ceramic (0.1" lead spacing)	12 for FP
C32, C31, C30, C29, FP:C1	5	N	SBC/FP	Valuepro	TM1/25	Jameco	154860	capacitor 1uF 25V radial lead tantalum 10%	
C37 FP:C7	2	N	SBC/FP	Valuepro	TM47/16	Jameco	94123	capacitor 47uF 16V radial lead tantalum	(Note-6) 1 for FP
J11-J14 FP:JP1, JP2	6	N	SBC/FP	Valuepro	7000-1X2SG-R	Jameco	108338	header 2 pin (jumper)	Stock no. corrected. Gold added. 2 for FP
J11-J14 FP:JP1, JP2	6	N	SBC/FP	Valuepro	7600-B-R	Jameco	22024	header shunt for jumpers	Added. 2 for FP
U22, U20, FP:U11	3	N	SBC/FP	Texas Instruments	74HC74	Mouser	595-SN74HC74N	IC Dual D flip-flop	
U19 FP:U12	2	N	SBC/FP	Texas Instruments	74HC05	Mouser	595-SN74HC05N	IC Hex inverter with open drain outputs	
U3, U2 FP:U1,U2	4	N	SBC/FP	Texas Instruments	74HC373	Mouser	595-SN74HC373N	IC Octal D latch	
R1-R5, R8, R10 FP:R3-R4	9	N	SBC/FP	Stackpole	CF18JT10K0	Digi-Key	CF18JT10K0CT-ND	resistor 10K 5% 1/8W	(Note-7)
	6	N	SBC/FP	Valuepro	6100-14-R	Jameco	37197	socket DIP machined 14 Pin	Added small SBC dips. 2 for FP
	10	N	SBC/FP	Valuepro	6100-16-R	Jameco	37402	socket DIP machined 16 Pin	Added small SBC dips. 6 for FP
	7	N	SBC/FP	Valuepro	6100-20	Jameco	38623	socket DIP machined 20 Pin	3 for FP
	6	N	SBC/FP	Valuepro	T/W 6100-24	Jameco	39386	socket DIP machined 24 Pin 0.3" width	1 for FP

Legend:

- SBC refers to the SBC6120 board.
- FP refers to the FP6120 board.
- "In Kit?" column: Y means that the part is included in the SBC6120/FP6120 Partial Kit from Spare Time Gizmos. N means that it is not included.
- Grayed items do not need to be ordered because they are included in the Partial Kit or are unused.
- IOB refers to the IOB6120 board.
- PL stands for parts list.
- STG is Spare Time Gizmos

Notes:

(1) - Samtec ESQ-125-14-G-D available direct from samtec.com ($8 plus $15 S/H) or newark.com ($10 plus S/H). Alternative Digi-Key A115364-ND ($18 plus) okay for (FP) J2 (untested), not for (FP) J1.
(2) - Would need to drill a 0.75" hole in bottom of case to access the power switch. Personally, I will leave out PLOCK (no jumper needed), jumper the trace for S1 and mount a suitable power switch on the back panel of the case.
(3) - SBC gets power from FP via the 50pin bus so J1 isn't used to power the SBC when installed on the FP board. However, I will use it to PROVIDE power to the CF/IDE adapter.
(4) - Run DC plug from wall xfmr through rear panel to J3.
(5) - Original part obsolete. Modify 78SR-5/2-C by bending the pins 90-deg so they project straight out from the module's PCB. Ferrite inductor faces down on the FP PCB. Note that horizontal version of this part pinout is reversed from what we need.
(6) - FP parts list shows C7 unused. C7 is shown on schematic as 1uF at the switcher input. I'm putting C7 back in as 47uF tantalum due to regulator spec and to help EMI.
(7) - Schem has SBC R8=4.7K, which is wrong (per IDE spec) but the PL (10K) was correct.
(8) - Mates with FP board J5. Cut off two of the four pins. Cut length to fit correctly.
(9) - Aluminum won't fit the layout. Also tantalum chosen to suppress switcher ripple.
(10) - SBC R6 was shown as 10K in schem but 4.7K in PL. Going with 4.7K since that provides faster response.
(11) - DC power plug must be right-angle (R/A) to clear the bottom of wooden case. AC adapters with R/A plugs are uncommon but we can solder one on an existing AC adapter. Make the center positive.
(12) - Original PL showed qty-20 standoffs. FP manual shows qty-25: 7 - LED bar, 4 - CF card, 4 - IDE drive, 5 - SBC board, 5 - IOB board. I added one extra, making 26. Of course, you may wish to leave some out.
(13) - Original SIPs were 560ohms giving about 5mA LED current. That seems low and the manual hints about socketing the SIPs to change the current. The 330ohm ones here give about 8.3mA which is max for the chips.
(14) - The PL said 1/4" nylon screw but the manual (p.9) says 3/8". Going with 3/8" because that should be a little better with the 1/2" spacer.
(15) - After soldering-in swage standoffs in IDE disk drive locations, drill out clearance holes in the (4) standoffs to pass the M3 screws. These secure the CF to IDE adapter.
(16) - Cut a female connector from the disk drive power Y-adapter, to replace the male power connector of the 44-pin to 40-pin IDE adapter, AD2. We need this to get power from the male power connector on the SBC. Ref Note-3.
(17) - You can easily find cheaper, bigger, faster cards than this $20 1GB card. But neither size nor speed matters here and there are lots of reports of unreliable cards. This one had better user ratings on Newegg.
(18) - The SBC6120 may be able to run at 8MHz.
(19) - I did not use this exact adapter but am reasonably convinced that its "industry standard" pinout matches the SBC6120 header.
(20) - 3/16" screws for fastening the SBC to the FP are provided with the partial kit but after going through the PCB, they fall short of the minimum three turns of purchase.