CERBERUS 2080™ Bill of Materials, V1.2, September 2021

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	Part	Comments	Designator on PCB	Quantity	Price indication per unit*	Price indication, total*
ICs and IC sockets	Alliance Memory **AS6C62256-55PCN**, SRAM - Asynchronous Memory IC 256Kb (32K x 8) Parallel 55ns 28-PDIP	High and Low memories	LOW-MEM,HIGH-MEM	2	€ 2,94	€ 5,88
	AR 28 HZL-TT, 28 (2 x 14) Pos DIP, 0.6" (15.24mm) Row Spacing, Socket, Through Hole	Or an equivalent 28-pos 0.6" (15.24mm) Row Spacing DIP socket. I highly recommend PRECISION sockets.	LOW-MEM,HIGH-MEM	2	€ 1,27	€ 2,54
	Microchip **ATF1504AS-10JU44**, IC CPLD 64MC 10NS 44PLCC	Cavia CPLD	CAVIA	1	€ 3,00	€ 3,00
	Microchip **ATF1508AS-10JU84**, IC CPLD 128MC 10NS 84PLCC	SCUNK and SPACER CPLDs	SPACER,SCUNK	2	€ 9,15	€ 18,30
	Adam Tech **PLCC-44-AT**, 44 (4 x 11) Pos PLCC Socket, Through Hole	Or an equivalent PLCC44 through-hole IC socket	CAVIA	1	€ 1,08	€ 1,08
	Adam Tech **PLCC-84-AT**, 84 (4 x 21) Pos PLCC Socket, Through Hole	Or an equivalent PLCC84 through-hole IC socket	SPACER,SCUNK	2	€ 1,26	€ 2,52
	SN74HC244N, Buffer, Non-Inverting 2 Element 4 Bit per Element 3-State Output 20-PDIP	Alternatives from other manufacturers should be OK, but always use HC family	BUFFER2,BUFFER1	2	€ 0,50	€ 1,00
	AR 20 HZL-TT, IC socket, 20 (2 x 10) Pos DIP, 0.3" (7.62mm) Row Spacing, Through Hole, Pitch - Mating 0.100" (2.54mm)	Or an equivalent 20-pos DIP socket. I highly recommend PRECISION sockets.	BUFFER2,BUFFER1	2	€ 0,46	€ 0,92
	W65C02S6TPG-14, IC, CPU, 14 MHz	W65C02S CPU	W65C02S	1	€ 6,99	€ 6,99
	Z84C0010PEG, IC, CPU, 10 MHz	Z80 CPU	Z80	1	€ 5,42	€ 5,42
	AR 40 HZL-TT, IC Socket, 40 (2 x 20) Pos DIP, 0.6" (15.24mm) Row Spacing, Through Hole, Pitch - Mating 0.100" (2.54mm)	Or an equivalent 40-pos DIP socket. I highly recommend PRECISION sockets.	Z80,W65C02S	2	€ 1,81	€ 3,62
	Microchip **ATMEGA328P-PU**, IC, microcontroller	CAT microcontroller	CAT	1	€ 2,15	€ 2,15
	AR 28-HZL/01/7-TT, IC socket, 28 (2 x 14) Pos DIP, 0.3" (7.62mm) Row Spacing Socket, Through Hole, Pitch - Mating 0.100" (2.54mm)	Or an equivalent 28-pos 0.3" (7.62mm) Row Spacing DIP socket. I highly recommend PRECISION sockets.	CAT	1	€ 2,19	€ 2,19
	Renesas **7132LA55PDGI**, SRAM - Dual Port, Asynchronous Memory IC 16Kb (2K x 8) Parallel 55ns 48-PDIP	The two dual-ported memories of 2 KB	VIDEO-DPRAM,CHAR-DPRAM	2	€ 10,33	€ 20,66
	AR 48 HZL-TT, IC Socket, 48 (2 x 24) Pos DIP, 0.6" (15.24mm) Row Spacing, Through Hole, Pitch - Mating 0.100" (2.54mm)	Or an equivalent 48-pos DIP socket. I highly recommend PRECISION sockets, particularly for 48 pins. Dual-wipe sockets will be hard to install, go for precision sockets.	VIDEO-DPRAM,CHAR-DPRAM	2	€ 2,17	€ 4,34
Oscillators & sockets	**OSZI 16,000000** MHz standard clock oscillator CMOS/TTYL compatible	Or an equivalent 16 MHz 4-pin strong oscillator with 5V signal amplitude	MAIN-OSCILLATOR	1	€ 1,01	€ 1,01
	ECS-100AX-25.175 25.175 MHz standard clock oscillator CMOS/TTL compatible	Or an equivalent 25.175 MHz 4-pin strong oscillator with 5V signal amplitude	VIDEO-OSCILLATOR	1	€ 1,25	€ 1,25
	Aries Electronics **A462-ND**, OSCILLATOR SOCKET FULL SIZE 4PIN	Sockets for the oscillators. Models of the same size from other brands should be OK.	MAIN-OSCILLATOR,VIDEO-OSCILLATOR	2	€ 0,65	€ 1,30
Capacitors	**10µF** 16V Aluminum Electrolytic Capacitor, radial, through-hole, lead spacing between 0.098" (2.50mm) and 0.138" (3.50mm)	Higher voltage is OK, but observe lead spacing	C31,C35,C19,C2	4	€ 0,25	€ 1,00
	100µF 16V Aluminum Electrolytic Capacitor, radial, through-hole, lead spacing between 0.098" (2.50mm) and 0.138" (3.50mm)	Higher voltage is OK, but observe lead spacing	C32,C34,C36,C15,C14	5	€ 0,25	€ 1,25
	470µF 16V Aluminum Electrolytic Capacitor, radial, through-hole, lead spacing between 0.098" (2.50mm) and 0.138" (3.50mm)	Higher voltage is OK, but observe lead spacing	C1	1	€ 0,32	€ 0,32
	470pF Ceramic Capacitor C0G, NP0 Radial, through-hole, lead spacing 0.200" (5.08mm)	Anything at or above 10V will do, but observe lead spacing	C4,C5	2	€ 0,38	€ 0,76
	100nF, Ceramic Capacitor Y5V, radial, lead spacing 0.197" (5.00mm)	Anything at or above 10V will do, but observe lead spacing	C20,C21,C22,C23,C24,C25,C26,C27,C28,C29,C30,C38,C39,C40,C6,C17,C3,C16,C7,C9,C8,C12,C13,C11,C10,C18	26	€ 0,20	€ 5,20
	100pF, Ceramic Capacitor X7R radial, lead spacing 0.197" (5.00mm)	Anything at or above 10V will do, but observe lead spacing	C33,C37	2	€ 0,18	€ 0,36
Transistors	**BC547B**, Bipolar (BJT) Transistor NPN 45V 100mA 300MHz 500mW Through Hole TO-92-3	Or equivalent NPN transistor in the same package	Q3,Q2	2	€ 0,39	€ 0,78
	BC337-40, Bipolar (BJT) Transistor NPN 45V 800mA 210MHz 625mW Through Hole TO-92	Or equivalent NPN transistor in the same package (But attention: this one should be a high-current transistor)	Q1	1	€ 0,34	€ 0,34

Resistors	**10KΩ**, Axial Metal Film Resistor, 1/4W, through-hole	The tolerance is not important. 5% will do just fine.	R11,R12,R49,R50,R63,R6,R5,R7,R8,R10,R9,R36,R35,R34,R33,R32,R31,R30,R29,R28,R27,R26,R25,R24,R23,R22,R21,R20,R19,R18,R17,R16,R15,R14,R13,R39,R40,R41,R42,R43,R44,R45,R46,R47,R48,R51,R52,R54,R55,R56,R57,R58,R59,R60,R61,R62,R64,R65	56	€ 0,02	€ 1,23
	2K2Ω, Axial Metal Film Resistor, 1/4W, through-hole, 1% tolerance		R53	1	€ 0,09	€ 0,09
	68Ω, Axial Metal Film Resistor, 1/4W, through-hole, 1% tolerance		R3,R2	2	€ 0,09	€ 0,18
	220Ω, Axial Metal Film Resistor, 1/4W, through-hole, 1% tolerance		R1,R4	1	€ 0,09	€ 0,09
	270Ω, Axial Metal Film Resistor, 1/4W, through-hole, 1% tolerance		R37,R38	2	€ 0,09	€ 0,18
Connectors	**40-pin Pin Header strip, male, vertical, through hole, 2.54mm pin pitch**	Cut the strip in the appropriate sizes to fit the respective PCB designations	ADDRESS-BUS-HEADER, DATA-BUS-HEADER, 5V-GND-1,5V-GND-2,5V-GND-3,5V-GND-4	1	€ 0,60	€ 0,60
	TE Connectivity **103308-1**, Connector Header Through Hole 10 position 0.100" (2.54mm)	These are the headers for JTAG in-system programming of the CPLDs	JTAG-SPACER,JTAG-CAVIA,JTAG-SCUNK	3	€ 1,65	€ 4,95
	CADANIA **1AA300833_JHJC** PS/2 keyboard connector	This is the PS/2 keyboard connector on the board	PS2-KEYBOARD-PORT	1	€ 0,53	€ 0,53
	Würth Elektronik **694106301002** DC Power Jack x6.4mm, Right Angle	Or equivalent barrel connector for 9V DC input	9V-DC	1	€ 1,20	€ 1,20
	MOLEX **90147-1106**, 6 Position Vertical Receptacle Connector 0.100" (2.54mm) Through Hole	Or equivalent, with the same physical dimensions. You may not need this, if your uSD card adapter has 8 pins or if you want to connect yours via the side, horizontal SD-CARD-ADAPTER-PORT3.	SD-CARD-ADAPTER-PORT1	1	€ 1,67	€ 1,67
	Samtec **SSW-106-02-F-S-RA**, 6 Position Horizontal Receptacle Connector 0.100" (2.54mm) Through Hole, Right Angle Gold	Or equivalent, with the same physical dimensions. You may not need one of these, if your uSD card adapter has 8 pins or if you use the vertical SD-CARD-ADAPTER-PORT1.	FTDI-ADAPTER-PORT, SD-CARD-ADAPTER-PORT3	2	€ 1,19	€ 2,38
	MOLEX **90147-1108**, 8 Position Vertical Receptacle Connector 0.100" (2.54mm) Through Hole	Or equivalent, with the same physical dimensions. You may not need this , if your uSD card adapter has 6 pins or if you want to connect yours via one of the side, horizontal SD-CARD-ADAPTER-PORT4 or SD-CARD-ADAPTER-PORT5.	SD-CARD-ADAPTER-PORT2	1	€ 2,20	€ 2,20
	Samtec **SSW-108-02-G-S-RA**, 8 Position Horizontal Receptacle Connector 0.100" (2.54mm) Through Hole, Right Angle Gold	Or equivalent, with the same physical dimensions. You may not need these , if your uSD card adapter has 6 pins or if you want to connect yours via the vertical SD-CARD-ADAPTER-PORT2	SD-CARD-ADAPTER-PORT4, SD-CARD-ADAPTER-PORT5	2	€ 1,43	€ 2,86
	Amphenol **L77HDE15SD1CH4RHNVGA**, D-Sub High Density Connectors Dsub, Stamped Signal 3A, High Density, Right Angle PCB Thru Hole, FP=8.89mm (.350"), 15 Socket, Bright Tin Shell, Flash Gold, 4-40 Rear Insert, Ground Tab with Boardlock, High Temp, Nickel Shell, VGA	This is the VGA connector on the board	VGA	1	€ 1,52	€ 1,52
Various	**SB2H100-E3/54**, Diode Schottky 100V 2A Through Hole DO-204AC (DO-15)	The one diode on the board	D1	1	€ 0,38	€ 0,38
	T7YA103MT20, Trimmer Potentiometer, through hole, 10Kohms, 20%	The trim potentiometer	TRIM-POT	1	€ 2,02	€ 2,02
	Traco Power **TSR 2-2450**, Linear Regulator Replacement DC DC Converter 1 Output 5V 2A 6.5V - 36V Input	The half-priced TSR 1-2450 (1A) should also do fine. This component is over-specified in CERBERUS.	REGULATOR	1	€ 8,95	€ 8,95
	Ekulit SUMMER CPM 121, **RMP-14SP**, Piezzo buzzer	Or equivalent buzzer with 7.6mm separation between the two leads	BUZZER	1	€ 1,16	€ 1,16
	Würth Elektronik **151051BS04000**, LED BLUE DIFFUSED 5MM ROUND Through-Hole	Any standard, 5mm discrete LED will do	POWER	1	€ 0,21	€ 0,21
	E-Switch **500SSP1S2M7QEA**, Slide Switch SPDT Through Hole, Right Angle, Vertical, 5A, 120V	This is the power on/off switch	SWITCH	1	€ 2,89	€ 2,89
	AZDelivery Micro SD TF Card Adapter, Memory Card Shield Module compatible with Arduino, using a 6-pin connector	A (micro)SD Card adapter is required by CERBERUS 2080. There are alternatives to this particular model, though, including some that use an 8-pin connector.	SD-CARD-ADAPTER-PORT1	1	€ 4,57	€ 4,57
	Nylon male stand-off, M2, 10+6mm (12+6mm also OK), with matching nut and screw	These are to hold the (u)S card adapter in place	SD-CARD-ADAPTER-PORT1	4	€ 0,25	€ 1,00
	Standard 12mm self-adhesive **rubber feet**	Standard rubber feet to avoid contact between solder joints and the surface where the computer sits	Try to place the rubber feet near to each of the four corners of the board, without touching solder joints	4	€ 0,20	€ 0,80
PCB	**CERBERUS 2080™ PCB**	Minimum order is 5 pieces. Estimated price is 1/5 of that.	Not applicable	1	€ 10,72	€ 10,72

TOTAL*: € 146,56