



Bill of Materials

PCB Name: PX-HERO Board
PCB Number: P0012
PCB Revision: G
BOM Number: P0012
BOM Revision: G
Variant: deluxe edition
Date: 2020-05-24
Engineer: Pieter Conradie
Template revision: 05

| # | Part ID | Quantity | Fitted | Group | Designator | Description | Footprint ID | Value | Manufacturer 1 | Manufacturer Part Number 1 | Supplier 1 | Supplier Part Number 1 | Supplier 2 | Supplier Part Number 2 |
|----|----------|----------|------------|-----------------|---|--|--------------|-----------------------|----------------------|----------------------------|------------|----------------------------------|--------------|------------------------|
| 1 | CAP00001 | 15 | Fitted | Electronics SMT | C1, C2, C3, C4, C6, C8, C12, C13, C14, C15, C18, C21, C27, C29, C38 | Capacitor 0603 100n 10% X7R 16V | 0603 | 100n | SAMSUNG | CL10B104K08NNWC | Digi-Key | 1276-1939-1-ND | Mouser | 603-CC603KRX7R78B104 |
| 2 | CAP00006 | 3 | Fitted | Electronics SMT | C5, C28, C36 | Capacitor 0805 10u 10% X5R 16V | 0805 | 10u | SAMSUNG | CL21A106K0QNNNG | Digi-Key | 1276-8455-1-ND | Mouser | 603-CC805KRX5R78B106 |
| 3 | CAP00002 | 3 | Fitted | Electronics SMT | C7, C22, C23 | Capacitor 0603 1u 10% X5R 16V | 0603 | 1u | SAMSUNG | CL10A105K08NNNC | Digi-Key | 1276-1034-1-ND | Mouser | 603-CC603KRX5R78B105 |
| 4 | CAP00014 | 2 | Fitted | Electronics SMT | C9, C10 | Capacitor 0603 18p 5% COG 50V | 0603 | 18p | Samsung | CL10C180JB8NNNC | Digi-Key | 1276-1089-1-ND | Mouser | 603-CC603JRNPC09B180 |
| 5 | CAP00003 | 2 | Fitted | Electronics SMT | C16, C34 | Capacitor 0603 10n 10% X7R 50V | 0603 | 10n | SAMSUNG | CL10B103K8BNCNC | Digi-Key | 1276-1921-1-ND | Mouser | 603-CC603KRX7R93B103 |
| 6 | CAP00008 | 4 | Fitted | Electronics SMT | C17, C32, C33, C35 | Capacitor 0805 4u7 10% X5R 16V | 0805 | 4u7 | SAMSUNG | CL21A475K0FNNE | Digi-Key | 1276-1065-1-ND | Mouser | 603-CC805KRX5R78B475 |
| 7 | CAP00004 | 2 | Fitted | Electronics SMT | C19, C20 | Capacitor 0603 47p 5% COG 50V | 0603 | 47p | Kemet | C0603C470J5GAC | Digi-Key | 399-1056-1-ND | Mouser | 603-CC201JRNPC09B470 |
| 8 | OPT00020 | 4 | Fitted | Electronics SMT | D1, D2, D4, D7 | LED SMD,0603,Red,99mcd,130deg | 0603 | LTST-C190KRKT | LITE-ON | LTST-C190KRKT | Digi-Key | 160-1436-1-ND | Mouser | 8594-LTST-C190KRKT |
| 9 | DIO00007 | 3 | Fitted | Electronics SMT | D5, D8, D9 | Diode Schottky Dual Common Cathode SOT23 BAS40-05 0.12A 40V | SOT23 | BAS40-05 | ROHM | BAS40-05HMFHT116 | Digi-Key | BAS40-05HMFHT116CT-ND | Mouser | 621-NRS40-05-F |
| 10 | DIO00001 | 1 | Fitted | Electronics SMT | D6 | Diode Schottky SMA B140-13-F 1A 40V | SMA | B140-13-F | Diodes Inc. | B140-13-F | Digi-Key | B140-FDICT-ND | Mouser | 512-SS14 |
| 11 | OPT00019 | 1 | Fitted | Electronics THT | DS1 | 128x64 Monochrome LCD with backlight | SMD | JHD12864-G176BSW | JHDLCM | JHD12864-G176BSW | Alibaba | positive replacement lcd display | | |
| 12 | IND00001 | 4 | Fitted | Electronics SMT | FB1, FB2, FB3, FB4 | Ferrite Bead 0603 BLM18BB151SN1D 20% 0.5A 150R | 0603 | BLM18AG151SN1D | Murata | BLM18AG151SN1D | Digi-Key | 490-5244-1-ND | Mouser | 81-BLM18AG151SN1D |
| 13 | CON00050 | 1 | Fitted | Kit | H1 | Header, 2x20, male THT, 2.54mm pitch, Vert/Straight, Gold Flash Overall, 6mm head (mating) | 0603 | 61304021121 | Würth | 61304021121 | Digi-Key | 732-5310-ND | Mouser | 710-61304021121 |
| 14 | CON00039 | 1 | Fitted | Electronics SMT | H2 | Connector, 1x4, SMD, 1mm pitch, Wire to board connector | SMD | BM04B-SRSS-TB(LF)S | JST | BM04B-SRSS-TB(LF)S(N) | Digi-Key | 456-1790-1-ND | | |
| 15 | CON00040 | 1 | Fitted | Kit | H3 | Connector, 1x4, SMD, 2mm pitch, Wire to board connector | 0603 | 110990030 | Seeed | 110990030 | Seeed | 110990030 | Digi-Key | 1597-1082-ND |
| 16 | CON00051 | 1 | Fitted | Electronics SMT | H6 | Header, 2x5, SMD, 1.27mm pitch, Vertical, Semi-shrouded with polarity | SMD | FTSH-105-01-L-DV-K-TR | Samtec | FTSH-105-01-L-DV-K-TR | Digi-Key | SAM13165CT-ND | Digi-Key | 609-3729-ND |
| 17 | CON00014 | 1 | Fitted | Kit | H9 | Connector, 1x2, Leaded Vertical, 2mm pitch, Wire to board connector | 0603 | B2B-PH-K-S | JST | B2B-PH-K-S | Digi-Key | 456-1704-ND | RSComponents | 546-8883 |
| 18 | CON00032 | 2 | Fitted | Electronics SMT | J1, J2 | Connector, 1x5, SMD&THT, 0.65mm pitch, Micro USB Receptacle type B | SMD | 10118194-0001LF | FCI | 10118194-0001LF | Digi-Key | 609-4618-1-ND | Mouser | 649-10118194-0001LF |
| 19 | CON00046 | 1 | Fitted | Electronics SMT | J3 | Connector, 1x10, SMD, 1.1mm pitch, Micro SD Push-push connector | SMD | TF-01 | Shenzhen Best Electr | TF-01 | seed | 320090008 | | |
| 20 | CON00037 | 1 | Fitted | Electronics SMT | J4 | Connector, 1x10, SMD, 1mm pitch, Bot contact | SMD | 979-33-51061A | Samtec | ZFI-10-011-T-WT | Digi-Key | SAM10872-ND | Mouser | 200-ZF10011TWT |
| 21 | IND00012 | 1 | Fitted | Electronics SMT | L1 | Inductor Polarized SMD 10u 20% 1.2A 0.18R | SMD | 100181100MDGJ | TAIYO YUDEN | NRS4018T100MDGJ | Digi-Key | 587-2886-1-ND | Mouser | 963-NRS4018T100MDGJ |
| 22 | SEN00012 | 1 | Fitted | Electronics SMT | LS1 | Speaker Leaded PS1240P02BT | 0603 | PS1240P02BT | TDK | PS1240P02BT | Digi-Key | 445-2525-1-ND | Mouser | 810-PS1240P02BT |
| 23 | MEC00021 | 1 | Fitted | PCB | PCB1 | P0014 ST STM32L072R8 Hero Board | | P0014 | | | | | | |
| 24 | TRA00004 | 1 | Fitted | Electronics SMT | Q1 | MOSFET P SOT23 DMP2305U-7 4.2A 20V | SOT23 | DMP2305U-7 | Diodes Inc. | DMP2305U-7 | Digi-Key | OMP2305UDICT-ND | Mouser | 621-DMP2305U-7 |
| 25 | TRA00003 | 2 | Fitted | Electronics SMT | Q2, Q3 | MOSFET P SOT23 BSS84 0.13A 50V | SOT23 | BSS84 | Diodes Inc. | BSS84-7-F | Digi-Key | BSS84-FDICT-ND | Mouser | 621-BSS84-F |
| 26 | TRA00009 | 1 | Fitted | Electronics SMT | Q4 | MOSFET N SOT23 BSS138 0.2A 50V | SOT23 | BSS138 | Diodes Inc. | BSS138-7-F | Digi-Key | BSS138-FDICT-ND | Mouser | 621-BSS138-7-F |
| 27 | RES00004 | 4 | Fitted | Electronics SMT | R1, R2, R4, R29 | Resistor SMD Metal Film 0603 4k7 1% 100mW | 0603 | 4k7 | YAGEO | RC0603FR-074K7L | Digi-Key | 311-4_70KHRCT-ND | Mouser | 603-RC0603FR-074K7L |
| 28 | RES00005 | 5 | Fitted | Electronics SMT | R3, R33, R35, R37, R39 | Resistor SMD Metal Film 0603 10k 1% 100mW | 0603 | 10k | YAGEO | RC0603FR-0710KL | Digi-Key | 311-10_0KHRCT-ND | Mouser | 603-RC0603FR-0710KL |
| 29 | RES00006 | 8 | Fitted | Electronics SMT | R5, R12, R13, R20, R30, R32, R34, R38 | Resistor SMD Metal Film 0603 56k 1% 100mW | 0603 | 56k | YAGEO | RC0603FR-0756KL | Digi-Key | 311-56KHRCT-ND | Mouser | 603-RC0603FR-0756KL |
| 30 | RES00009 | 1 | Fitted | Electronics SMT | R6 | Resistor SMD Metal Film 0603 270R 1% 100mW | 0603 | 270R | YAGEO | RC0603FR-07270RL | Digi-Key | 311-270HRCT-ND | Mouser | 603-RC0603FR-07270RL |
| 31 | RES00003 | 3 | Fitted | Electronics SMT | R7, R8, R19 | Resistor SMD Metal Film 0603 27R 1% 100mW | 0603 | 27R | YAGEO | RC0603FR-0727RL | Digi-Key | 311-27_0HRCT-ND | Mouser | 603-RC0603FR-0727RL |
| 32 | RES00002 | 5 | Fitted | Electronics SMT | R9, R10, R11, R25, R28 | Resistor SMD Metal Film 0603 1k 1% 100mW | 0603 | 1k | YAGEO | RC0603FR-071KL | Digi-Key | 311-1_0KHRCT-ND | Mouser | 603-RC0603FR-071KL |
| 33 | RES00019 | 1 | Fitted | Electronics SMT | R31 | Resistor SMD Metal Film 0603 36k 1% 100mW | 0603 | 36k | YAGEO | RC0603FR-0736KL | Digi-Key | 311-36_0KHRCT-ND | Mouser | 603-RC0603FR-0736KL |
| 34 | RES00015 | 1 | Fitted | Electronics SMT | R40 | Resistor SMD Metal Film 0603 1M 1% 100mW | 0603 | 1M | YAGEO | RC0603FR-071ML | Digi-Key | 311-1_00MHRCT-ND | Mouser | 603-RC0603FR-071ML |
| 35 | MEC00028 | 7 | Fitted | Electronics SMT | S1, S2, S3, S4, S5, S6, S7 | Push Button, SMD Gull Wing, SPST-NO, 6mm x 6mm outline, 5mm height; 130g force | SMD | PTS845SL50SMTR92 LF | C&K | PTS845SL50SMTR92 LFS | Digi-Key | CKN9088CT-ND | Mouser | 611-PTS845SL50SMTR92 |
| 36 | IC00042 | 1 | Fitted | Electronics SMT | U1 | Ultra-low-power 32-bit MCU ARM Cortex-M0+, up to 128 KB Flash memory, 20 KB SRAM, 2 | LQFP64 | STM32L072R8T8 | ST Microelectronics | STM32L072R8T8 | Digi-Key | 497-17504-ND | Mouser | 611-STM32L072R8T8 |
| 37 | IC00046 | 1 | Fitted | Electronics SMT | U2 | 1-MHz, 350-mA, 3.3V Step-Down DC-DC Converter | SOT23-6 | LM3670MF-3.3NOPB | Texas Instruments | LM3670MF-3.3NOPBCT-ND | Digi-Key | 143670MF-3.3NOPBCT-ND | Mouser | 926-LM3670MF33NOPB |
| 38 | IC00012 | 1 | Fitted | Electronics SMT | U3 | Single-Cell, Fully Integrated Li-Ion Li-Polymer Charge Management Controller | SOT23-6 | MCP73831T-2AT10T | Microchip | MCP73831T-2AT10T | Digi-Key | 579-MCP73831T-2AT10T | Mouser | 579-MCP73831T-2AT10T |
| 39 | IC00045 | 1 | Fitted | Electronics SMT | U4 | 4-Mbit 2.5V SPI Serial Flash Memory | SO8 | AT25SF041-SSHD-B | adesio | AT25SF041-SSHD-B | Digi-Key | 1265-1174-5-ND | Mouser | 988-AT25SF041-SSHD-B |
| 40 | IC00002 | 1 | Fitted | Electronics SMT | U6 | USB to BASIC UART IC (Rev D+) | FT230P16 | FT230XS* | FTDI Chip | FT230XS* | Digi-Key | 768-1135-1-ND | Mouser | 895-FT230XS-R |
| 41 | IC00050 | 1 | Fitted | Electronics SMT | U7 | Bus buffer/line driver, 3-state | SC70 | 74LVC1G125GW, 125 | NXP | 74LVC1G125GW, 125 | Digi-Key | 1727-3498-1-ND | Mouser | 595-SN74LVC1G125DCKR |
| 42 | OSC00003 | 1 | Fitted | Electronics SMT | Y1 | Crystal SMD 32.768kHz 20ppm -40/85C 12.5pF | SMD | 32.768kHz | WTL | WTL1M32122 | Digi-Key | 1908-1341-1-ND | Digi-Key | 683270921CT-ND |
| 43 | CAP00001 | 0 | Not Fitted | Electronics SMT | C11, C24 | Capacitor 0603 100n 10% X7R 16V | 0603 | 100n | SAMSUNG | CL10B104K08NNWC | Digi-Key | 1276-1939-1-ND | Mouser | 603-CC603KRX7R78B104 |
| 44 | CAP00012 | 0 | Not Fitted | Electronics SMT | C25, C26, C30, C31 | Capacitor 0805 100n 10% X7R 16V | 0805 | 100n | Kemet | C0805X104K8RACTU | Digi-Key | 399-5331-1-ND | Mouser | 603-CC805KRX7R78B104 |
| 45 | CAP00003 | 0 | Not Fitted | Electronics SMT | C37 | Capacitor 0603 10n 10% X7R 50V | 0603 | 10n | SAMSUNG | CL10B103K8BNCNC | Digi-Key | 1276-1921-1-ND | Mouser | 603-CC603KRX7R93B103 |
| 46 | DIO00002 | 0 | Not Fitted | Electronics SMT | D3 | Diode Schottky Dual Common Anode-Cathode SOT23 BAS40-04 0.12A 40V | SOT23 | BAS40-04 | Diodes Inc. | BAS40-04-7-F | Digi-Key | BAS40-04FDICT-ND | Digi-Key | BAS40-04HMFHT116CT-ND |
| 47 | CON00043 | 0 | Not Fitted | Electronics SMT | H4 | Header, 1x4, SMD, 2.54mm pitch, Vertical | SMD | M20-8770442 | Harwin | M20-8770442 | Digi-Key | 952-2353-ND | Mouser | 855-M20-8770442 |
| 48 | CON00012 | 0 | Not Fitted | Electronics THT | H5 | Header, 1x5, Leaded, 2.54mm pitch, Vertical | 0603 | 210-71-05GB01 | Pinmax | 210-71-05GB01 | Digi-Key | 732-5318-ND | Mouser | M20-9990546 |
| 49 | CON00007 | 0 | Not Fitted | Kit | H7, H11, H12, H13, H18 | Header, 1x2, Vertical, 2.54mm pitch | 0603 | 210-71-02GB01 | Pinmax | 210-71-02GB01 | Digi-Key | 732-5315-ND | | |
| 50 | CON00011 | 0 | Not Fitted | Kit | H8 | Connector, 1x3, Leaded Vertical, 2mm pitch, Wire to board connector | 0603 | 53253-0370 | Molex | 53253-0370 | Digi-Key | WM19005-ND | RSComponents | 688-3283 |
| 51 | CON00033 | 0 | Not Fitted | Kit | H10 | Header, 1x3, Leaded, 2.54mm pitch, Vertical | 0603 | 210-71-03GB01 | Pinmax | 210-71-03GB01 | Digi-Key | 732-5316-ND | | |
| 52 | CON00029 | 0 | Not Fitted | Kit | JP7, JP10, JP11, JP12 | Jumper, 2 Way, 2.54mm | | QPC025XGN-RC | Sullins | QPC025XGN-RC | Digi-Key | S9337-ND | Communica | 7021_JRK |
| 53 | SEN00007 | 0 | Not Fitted | Electronics SMT | LS2 | Speaker SMD PKLCS1212E4001-R1 | SMD | PKLCS1212E4001-R1 | Murata | PKLCS1212E4001-R1 | Digi-Key | 490-4883-1-ND | RSComponents | 754-1980 |
| 54 | RES00006 | 0 | Not Fitted | Electronics SMT | R14, R36 | Resistor SMD Metal Film 0603 56k 1% 100mW | 0603 | 56k | YAGEO | RC0603FR-0756KL | Digi-Key | 311-56KHRCT-ND | Mouser | 603-RC0603FR-0756KL |
| 55 | RES00008 | 0 | Not Fitted | Electronics SMT | R17, R18, R23, R24 | Resistor SMD Metal Film 0805 1k 1% 125mW | 0805 | 1k | YAGEO | RC0805FR-1KL | Digi-Key | 311-1_00KCRTR-ND | | |
| 56 | RES00001 | 0 | Not Fitted | Electronics SMT | R26, R27 | Resistor SMD Metal Film 0603 0R 1% 100mW | 0603 | 0R | YAGEO | RC0603FR-0RL | Digi-Key | 311-0_0HRTR-ND | | |
| 57 | IC00044 | 0 | Not Fitted | Electronics SMT | U5 | Very low capacitance ESD protection for USB | SOT23-6 | 82400102 | Würth | 82400102 | Digi-Key | 732-4473-1-ND | | |