



## Bill of materials

Table 1. X-STM32MP-IGTW1 bill of materials

| Item | Q.ty | Ref.                                                                         | Part / Value          | Description                                                     | Manufacturer       | Order code          |
|------|------|------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------|--------------------|---------------------|
| 1    | 17   | C1, C2, C3, C4, C5, C7, C9, C11, C12, C18, C19, C20, C22, C23, C25, C31, C35 | 100nF                 | CAP CER 0.1UF 50V X7R 0603                                      | Würth Elektronik   | 885012206095        |
| 2    | 1    | C6                                                                           | 10uF/16V              | CAP TANT 10UF 10% 16V 1206                                      | KEMET              | T491A106K016 AT     |
| 3    | 2    | C8, C10                                                                      | 47pF                  | CAP CER 47pF 50V X7R 0603                                       | KEMET              | C0603C104K5 RACTU   |
| 4    | 5    | C13, C14, C15, C16, C17                                                      | 100nF/10V             | CAP CER 0.1UF 50V X7R 0603                                      | Würth Elektronik   | 885012206020        |
| 5    | 1    | C21                                                                          | 100pF                 | '100 pF ±10% 100V Ceramic Capacitor X7R 0603 (1608 Metric)      | 'Würth Elektronik  | '885012206102       |
| 6    | 1    | C24                                                                          | 10uF                  | CAP CER 10UF 35V X5R 0603                                       | Murata Electronics | GRM188R6YA1 06MA73D |
| 7    | 8    | C26, C29, C32, C33, C36, C38, C39, C40                                       | 1uF                   | '1 µF ±10% 16V Ceramic Capacitor X7R 0603 (1608 Metric)         | 'Würth Elektronik  | '885012206052       |
| 8    | 2    | C27, C28                                                                     | 150uF                 | CAP TANT 150UF 10% 10V 2312                                     | KEMET              | T494C157K010 AT     |
| 9    | 1    | C30                                                                          | 330uF 35V             | Aluminium Electrolytic Capacitors - SMD 35VDC 330uF 20% SMD AEC | Panasonic          | EEEFK1V331G P       |
| 10   | 1    | C34                                                                          | 22uF                  | CAP CER 22UF 35V X7R 0603                                       | 'Würth Elektronik  | '885012106032       |
| 11   | 1    | C37                                                                          | 220uF                 | CAP CER 220uF                                                   | Panasonic          | 'ECE-A1AKS221I      |
| 12   | 1    | CN2                                                                          | Header 20X2           | Double Row_Vertical_100" _Extended Tail Connector               | Samtec             | SSQ-120-03-T-D      |
| 13   | 1    | CN3                                                                          | 691210910002          | TERM BLOCK 4P HORIZON 2.54MM PCB                                | Würth Elektronik   | 691210910002        |
| 14   | 1    | D1                                                                           | ESDCAN24-2B LY, SOT23 | TVS Diode Array Bi-Directional ESDCAN24-2B LY Dual 40V, 230W,   | ST                 | ESDCAN24-2B LY      |

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|------|------|--------------------|--------------------------|-------------------------------------------------------------------------------------------------------------|------------------|-------------------|
|      |      |                    |                          | SOT23-3L 3-Pin                                                                                              |                  |                   |
| 15   | 1    | D2                 | ESDA25P35-1 U1M, QFN-2L  | Unidirectional high power transient voltage suppressor 6V3                                                  | ST               | ESDA25P35-1 U1M   |
| 16   | 1    | D3                 | SMF22AT1G                | 200 W Transient Voltage Suppressor SOD-123 Flat Lead Package                                                | Onsemi           | SMF22AT1G         |
| 17   | 1    | F1                 | 0603L003_36Y R           | Polymeric PTC Resettable Fuse 36V 30 mA 1h Surface Mount 0603 (1608 Metric), Concave                        | LITTELFUSE       | 0603L003/36Y R    |
| 18   | 1    | FB1                | 1K                       | 500 Ohms @ 100MHz 1 Ferrite Bead 0805 (2012 Metric) 500mA 300mOhm                                           | Abracon          | ACML-0805-50 1-T  |
| 19   | 4    | HW1, HW2, HW3, HW4 | Shunt Black 2.54mm       | SHUNT 2.54mm BLACK                                                                                          | SAMTEC           | SNT-100-BK-G      |
| 20   | 2    | J1, J7             | SHUNT 2.54mm             | CONN HEADER VERT 3POS 2.54MM                                                                                | Samtec Inc.      | TSW-103-07-F-S    |
| 21   | 4    | J2, J3, J4, J5     | Mouting hole_3.2mm drill | 'Hex Standoff Threaded M3x0.5 Nylon 0.472" (12.00mm) Natural                                                | 'Essentra        | '36M30MF012       |
| 22   | 2    | J6, J10            | 691311500003             | Würth Elektronik 311 Series 5.08mm Pitch Straight Pluggable Terminal Block, PCB Header, Through Hole, 3 Way | Würth Elektronik | 691311500003      |
| 23   | 1    | J8                 | 691210910004             | WR-TBL Series 2109 Horizontal Entry, THT, pitch 2.54mm, 04p                                                 | Würth Elektronik | 691210910004      |
| 24   | 1    | J9                 | S6B-XH-A(LF) (SN)        | 6 Pins, 1 Row 2.54mm Pitch, right angle Connector, male                                                     | JST              | S6B-XH-A(LF) (SN) |
| 25   | 1    | J11                | SQT-110-01-F-D-RA        | Rugged PCB Sockets, 2.00mm pitch                                                                            | Samtec           | SQT-110-01-F-D-RA |

| Item | Q.ty | Ref.                                                                                                                                                           | Part / Value | Description                                                                                                                                     | Manufacturer         | Order code         |
|------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------|
| 26   | 1    | J12                                                                                                                                                            | S8411-45R    | Connector                                                                                                                                       | Harwin               | S8411-45R          |
| 27   | 1    | L1                                                                                                                                                             | 12uH         | 12 $\mu$ H<br>Unshielded<br>Drum Core,<br>Wirewound<br>Inductor 210<br>mA 1.82Ohm<br>Max 0806<br>(2016 Metric)                                  | Coilcraft            | XGL4030-123M<br>EC |
| 28   | 1    | L2                                                                                                                                                             | 5.6uH        | '5.6 $\mu$ H<br>Unshielded<br>Drum Core,<br>Wirewound<br>Inductor 280<br>mA 1.17Ohm<br>Max 0806<br>(2016 Metric)                                | Coilcraft            | XGL4030-562M<br>EC |
| 29   | 3    | LD1, LD3, LD4                                                                                                                                                  | LED_green    | LED Green,<br>0603 SMD, Fw<br>Voltage = 2.8V -<br>3.6V                                                                                          | VISHAY               | VLMTG1300-<br>GS08 |
| 30   | 1    | LD2                                                                                                                                                            | LED_red      | LED Red, 0603<br>SMD, 2V<br>Forward<br>Voltage                                                                                                  | VISHAY               | VLMS1300-<br>GS08  |
| 31   | 2    | LD5, LD6                                                                                                                                                       | LED_blue     | LED Blue, 0603<br>SMD, 3.3 V<br>Forward<br>Voltage                                                                                              | VISHAY               | VLMB1300-<br>GS08  |
| 32   | 5    | R1, R2, R44, R55, R56                                                                                                                                          | 1K           | 1 kOhms $\pm$ 1%<br>0.1W, 1/10W<br>Chip Resistor<br>0603 (1608<br>Metric), 1K $\pm$ 1%<br>0.1W, 1/10W<br>Chip Resistor<br>0603 (1608<br>Metric) | 'Würth<br>Elektronik | '560112116014      |
| 33   | 2    | R3, R4                                                                                                                                                         | 3.9K         | RES 3.9K OHM<br>1% 1/10W 0603                                                                                                                   | 'Würth<br>Elektronik | '560112116021      |
| 34   | 3    | R5, R6, R7                                                                                                                                                     | 22K/NM       | RES 22K OHM<br>1% 1/10W 0603<br>(not mounted)                                                                                                   | Walsin               | WR06X2202FT<br>L   |
| 35   | 30   | R8, R9, R10, R11, R12, R13,<br>R14, R15, R16, R17, R18, R19,<br>R20, R21, R22, R23, R24, R25,<br>R26, R27, R28, R29, R30, R31,<br>R32, R33, R34, R35, R39, R60 | 0R           | RES 0 OHM<br>JUMPER<br>1/10W 0603                                                                                                               | 'Würth<br>Elektronik | '560112116001      |
| 36   | 6    | R36, R48, R49, R50, R51, R52                                                                                                                                   | 300R         | RES 300 OHM<br>1% 1/10W 0603                                                                                                                    | 'Würth<br>Elektronik | '560112116082      |
| 37   | 2    | R37, R43                                                                                                                                                       | 120R         | RES 120 OHM<br>1% 1/10W 0603                                                                                                                    | 'Würth<br>Elektronik | '560112116119      |
| 38   | 4    | R38, R41, R53, R54                                                                                                                                             | 4.7K         | RES 4.7K OHM<br>1% 1/10W 0603                                                                                                                   | 'Würth<br>Elektronik | '560112116006      |
| 39   | 1    | R40                                                                                                                                                            | 3.3K         | 3.3 kOhms $\pm$ 1%<br>0.1W, 1/10W<br>Chip Resistor<br>0603 (1608<br>Metric)                                                                     | 'Würth<br>Elektronik | '560112116047      |

| Item | Q.ty | Ref.               | Part / Value                   | Description                                                                                                              | Manufacturer            | Order code                            |
|------|------|--------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------|
| 40   | 2    | R42, R45           | 10K                            | RES 10K OHM<br>1% 1/10W 0603                                                                                             | Wurth<br>Elektronik     | '560112116005                         |
| 41   | 2    | R46, R47           | 2.2K                           | RES 2.2K OHM<br>1% 1/10W 0603                                                                                            | Wurth<br>Elektronik     | '560112116098                         |
| 42   | 2    | R57, R58           | 100R                           | RES 100 OHM<br>1% 1/10W 0603                                                                                             | Walsin                  | WR06X1000FT<br>L                      |
| 43   | 1    | R59                | 1K/NM                          | 1K $\pm$ 1% 0.1W,<br>1/10W Chip<br>Resistor 0603<br>(1608 Metric)<br>(not mounted)                                       | Walsin                  | WR06X1001FT<br>L                      |
| 44   | 3    | SB1, SB2, SB3      | 0/NM                           | RES 0 OHM<br>JUMPER<br>1/10W 0603<br>(not mounted)                                                                       | Rohm<br>Semiconductor   | SFR03EZPJ00<br>0                      |
| 45   | 3    | SW1, SW2, SW3      | SW-PUSH-<br>CMS_KMR2_B<br>LACK | Microminiature<br>Tact Switch for<br>SMT - KMR 2<br>Series - 1.9 mm<br>height                                            | C&K                     | KMR231GLFS                            |
| 46   | 4    | TP1, TP2, TP3, TP4 | TP                             | TEST POINT<br>PC MINI .040"D<br>RED                                                                                      | Keystone<br>Electronics | 5000                                  |
| 47   | 1    | TP5                | TP-SMD-<br>S2761-46R           | PC TEST<br>POINT<br>NATURAL                                                                                              | HARWIN                  | S2761-46R                             |
| 48   | 1    | U1                 | M24C32-<br>RMN6TP, 8-<br>SOIC  | IC EEPROM<br>32KBIT I2C<br>1MHZ 8SOIC                                                                                    | ST                      | <a href="#">M24C32-<br/>RMN6TP</a>    |
| 49   | 1    | U2                 | XR31235ED                      | CAN Interface<br>IC 3.3V CAN<br>Bus XCVR<br>Autobaud LB<br>Mode                                                          | MaxLinear, Inc.         | XR31235ED                             |
| 50   | 1    | U3                 | STSAFA110S8<br>SPL02, 8-SOIC   | Authentication,<br>state-of-the-art<br>security for<br>peripherals and<br>IoT devices                                    | ST                      | <a href="#">STSAFA110S8<br/>SPL02</a> |
| 51   | 1    | U4                 | ST3232CTR,<br>TSSOP16          | ST3232CTR,<br>Line<br>Transceiver,<br>EIA/TIA-232,<br>RS-232, V.24,<br>V.28 2-TX 2-RX<br>2-TRX, 3.3, 5V,<br>16-Pin TSSOP | ST                      | <a href="#">ST3232CTR</a>             |
| 52   | 1    | U5                 | ST4E1240DT,<br>8-SOIC          | High-speed 3.3<br>V / 5 V RS485<br>transceiver with<br>&#177; 12 kV<br>IEC 61000-4-2<br>contact ESD<br>protection        | ST                      | <a href="#">ST4E1240DT</a>            |
| 53   | 1    | U6                 | M41T83RQA6F,<br>QFN16          | Serial I&#178;C<br>bus real-time<br>clock (RTC)                                                                          | ST                      | <a href="#">M41T83RQA6F</a>           |

| Item | Q.ty | Ref.                | Part / Value                  | Description                                                                               | Manufacturer     | Order code                   |
|------|------|---------------------|-------------------------------|-------------------------------------------------------------------------------------------|------------------|------------------------------|
|      |      |                     |                               | with battery switchover                                                                   |                  |                              |
| 54   | 1    | U7                  | L6983N50QTR, QFN16            | Switching Voltage Regulators POWER MANAGEMENT                                             | ST               | <a href="#">L6983N50QTR</a>  |
| 55   | 1    | U8                  | L6983N33QTR, QFN16            | Switching Voltage Regulators POWER MANAGEMENT                                             | ST               | <a href="#">L6983N50QTR</a>  |
| 56   | 1    | XTAL1               | MC-146_32.768 0KA-A5__PURE_SN | Crystal or Oscillator                                                                     | Epson Timing     | MC-146 32.7680KA-A5: PURE SN |
| 57   | 4    | Nut                 |                               | M3x0.5 Hex Nut 0.217" (5.50mm) Nylon                                                      | Würth Elektronik | 709940300                    |
| 58   | 4    | Spacer              |                               | Hex Standoff Threaded M3x0.5 Nylon 0.472" (12.00mm) Natural                               | Essentra         | 36M30MF012                   |
| 59   | 1    | HW1                 | Shunt Black 2.54mm            | SHUNT 2.54mm BLACK                                                                        | Würth Elektronik | 60900213421                  |
| 60   | 1    | HW2                 | Shunt Black 2.54mm            | SHUNT 2.54mm BLACK                                                                        | Würth Elektronik | 60900213421                  |
| 61   | 1    | HW3                 | Shunt Black 2.54mm            | SHUNT 2.54mm BLACK                                                                        | Würth Elektronik | 60900213421                  |
| 62   | 1    | HW4                 | Shunt Black 2.54mm            | SHUNT 2.54mm BLACK                                                                        | Würth Elektronik | 60900213421                  |
| 63   | 2    | Terminal Block plug | 5.08mm Pitch_TH               | 3 Position Terminal Block Plug, Female Sockets 0.200" (5.08mm) 90° Free Hanging (In-Line) | Würth Elektronik | 691352510003                 |

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