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|                  |       |                        |            |                                 |                          |
|------------------|-------|------------------------|------------|---------------------------------|--------------------------|
| <b>Model 393</b> |       | <b>Interface Board</b> |            | DESIGNED <b>Andrey Filippov</b> |                          |
| NEXT ASSY        | QTY 1 | DATE                   | 1D20389    | DRAWN                           | Andrey Filippov          |
| FILE 10389B      | 80389 | REV B                  | ECN#       | DATE                            | 06/19/2013               |
|                  |       | DATE                   | 11/24/2015 | PRINTED                         | 12/11/2015 AT 1:23:28 PM |

| SUB-ASSEMBLY |      |     |      |      |      |                                                                                                            |                      |                                   |           |                         |       |          |         |          |
|--------------|------|-----|------|------|------|------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------|-----------|-------------------------|-------|----------|---------|----------|
| USAGE        | #    |     | NO.  |      |      | 4A20389                                                                                                    | RELEASE DATE         | 11/30/15                          | P/L       | REV.                    | REV.  | Units to | Total   | Cost per |
|              |      |     |      |      |      | Model 393 Interface Board                                                                                  |                      |                                   | DATE      | LTR                     | DATE  | Build    | Cost    | Unit     |
|              | 393  | 1   |      |      |      | PCB Assembly 80389                                                                                         | JOB#                 | N/A                               | 6/19/2013 | B                       | ##### | 1        | \$95.65 | \$95.65  |
|              |      |     | # TO | MFGR |      | 1                                                                                                          | WORK ORDER #         | N/A                               |           |                         |       |          |         |          |
|              |      |     | NEXT | ASSY |      | 4A-?????                                                                                                   | NON STANDARD         |                                   |           |                         |       |          |         |          |
|              |      |     |      |      |      |                                                                                                            | NOTATIONS            |                                   |           |                         |       |          |         |          |
| DESIGNATOR   | ITEM | QTY | EXT  | STK  | ROHS |                                                                                                            | PART                 | MANUFAC                           |           | VENDOR                  | PURCH | UNIT     |         | NEW      |
| NUMBER       | #    | REQ | QTY  | CHK  |      | DESCRIPTION                                                                                                | #                    | TURER                             | VENDOR    | PART #                  | QTY   | PRICE    | TOTAL   | STOCK    |
|              |      |     |      |      |      | <b>Related Documents</b>                                                                                   |                      |                                   |           |                         |       |          |         |          |
|              | 0.5  | 1   | 1    |      |      | Schematic 10389B (80389), Model 393                                                                        | 1D20389 Rev.B        | Designed by<br>Andrey<br>Filippov |           |                         |       |          |         |          |
|              | 20   | 1   | 1    |      |      | Fabrication (80389), Model 393                                                                             | 4F20389 Rev.B        |                                   |           |                         |       |          |         |          |
|              | 21   | 1   | 1    |      |      | Artwork (80389), Model 393                                                                                 | 4G20389 Rev.B        |                                   |           |                         |       |          |         |          |
|              |      |     |      |      |      | <b>Integrated Circuits</b>                                                                                 |                      |                                   |           |                         |       |          |         |          |
| U5           | 40   | 1   | 1    |      | Y    | I2C 8Kb EEPROM with Temperature Sensor, <b>1.8V</b> , UDFN-8, marked as <b>T8A</b>                         | AT30TSE758A-MA8M-T   | Atmel                             | Digi-Key  | AT30TSE758A-MA8M-TCT-ND | 1     | 1.59     | 1.59    | 0        |
| U9, U11      | 41   | 2   | 2    |      | Y    | Optocoupler, High Speed Open Collector Output, <b>3.3V</b> , PS-SOP-5                                      | PS9121A              | CEL                               | Digi-Key  | PS9121-ND               | 2     | 2.93     | 5.86    | 0        |
| U12          | 42   | 1   | 1    |      | Y    | Oscillator MEMS, <b>24MHZ</b> , OSC4-2520                                                                  | ASDMB-24.000MHZ-XY-T | Abracon Corporation               | Digi-Key  | 535-11155-1-ND          | 1     | 3.64     | 3.64    | 0        |
| U4           | 43   | 1   | 1    |      | Y    | 8 bit I2C I/O port with 3-state outputs, XQFN-12, marked as <b>71</b>                                      | PCA9571GUX           | NXP Semiconductors                | Digi-Key  | 568-12400-1-ND          | 1     | 0.9      | 0.9     | 0        |
| U7           | 44   | 1   | 1    |      | Y    | Dual 5-A High Speed Low-side MOSFET Driver, <b>5A</b> , WDFN-8, marked                                     | UCC27526DSDR         | Texas Instruments                 | Digi-Key  | 296-30456-1-ND          | 1     | 2.15     | 2.15    | 0        |
| U3           | 45   | 1   | 1    |      | Y    | Dual Bidirectional Voltage-level Translator, X2SON-8, marked as <b>2HR</b>                                 | TXS0102DQMR          | Texas Instruments                 | Mouser    | 595-TXS0102DQMR         | 1     | 0.81     | 0.81    | 0        |
| U16          | 46   | 1   | 1    |      | Y    | Gigabit Crosspoint Switch, FCBGA-36                                                                        | VSC3304XHV-01        | Vitesse Semiconductor             | Digi-Key  | 907-1036-ND             | 1     | 29.7     | 29.7    | 0        |
| U1           | 47   | 1   | 1    |      | Y    | Octal Bidirectional Voltage-level Translator for Open Drain Applications, VFQFN-20, marked as <b>YF08E</b> | TXS0108ERGYR         | Texas Instruments                 | Digi-Key  | 296-24806-1-ND          | 1     | 2        | 2       | 0        |
| U8, U10      | 48   | 2   | 2    |      | Y    | Optocoupler, Darlington Phototransistor Output, SHARP-SOP-4                                                | PC3H510NIP0F         | Sharp                             | Digi-Key  | 425-2106-1-ND           | 2     | 0.69     | 1.38    | 0        |
| U2           | 49   | 1   | 1    |      | Y    | Quad Bidirectional Voltage-level Translator, Buffer Type, UFQFN-12, marked as <b>2KR</b>                   | TXB0104RUTR          | Texas Instruments                 | Digi-Key  | 296-25888-1-ND          | 1     | 1.07     | 1.07    | 0        |

| DESIGNATOR                                                              | ITEM | QTY | EXT | STK | ROHS |                                                                                                 | PART                | MANUFAC        | VENDOR   | VENDOR                  | PURCH | UNIT  | TOTAL | NEW   |
|-------------------------------------------------------------------------|------|-----|-----|-----|------|-------------------------------------------------------------------------------------------------|---------------------|----------------|----------|-------------------------|-------|-------|-------|-------|
| NUMBER                                                                  | #    | REQ | QTY | CHK |      | DESCRIPTION                                                                                     | #                   | TURER          | VENDOR   | PART #                  | QTY   | PRICE | TOTAL | STOCK |
| U14-U15                                                                 | 50   | 2   | 2   |     | Y    | Single Channel Power Distribution Switch, MLF-6, marked as <b>F05</b>                           | MIC2005-0.5YML      | Micrel         | Digi-Key | 576-1678-1-ND           | 2     | 1.83  | 3.66  | 0     |
| U13                                                                     | 51   | 1   | 1   |     | Y    | USB 2.0 High-Speed 4-Port Hub Controller, QFN-36                                                | USB2514BI-AEZG      | Microchip      | Digi-Key |                         | 1     | 3.39  | 3.39  | 0     |
|                                                                         |      |     |     |     |      | <b>Power Supply Modules</b>                                                                     |                     |                |          |                         |       |       |       |       |
| DC1                                                                     | 52   | 1   | 1   |     | Y    | Step Down Synchronous DC-DC Converter, <b>2.5V, 2A</b> , VFDFN-10, marked as <b>LFP</b>         | ADP2119ACPZ-2.5-R7  | Analog Devices | Digi-Key | ADP2119ACPZ-2.5-R7CT-ND | 1     | 3.81  | 3.81  | 0     |
|                                                                         |      |     |     |     |      | <b>Transistors</b>                                                                              |                     |                |          |                         |       |       |       |       |
| Q1                                                                      | 53   | 1   | 1   |     | Y    | N-Channel Enhancement-Mode MOSFET, Vgsth=0.95V, <b>20V, 1.3A</b> , XFDFN-3, marked as <b>NL</b> | DMN2300UFB4-7B      | Diodes Inc     | Digi-Key | DMN2300UFB4-7BDICT-ND   | 1     | 0.42  | 0.42  | 0     |
|                                                                         |      |     |     |     |      | <b>Diodes</b>                                                                                   |                     |                |          |                         |       |       |       |       |
| CR1-CR2                                                                 | 54   | 2   | 2   |     | Y    | Shottky Diode, Series, <b>30V, 200mA</b> , SOT-523, marked as <b>L4</b>                         | BAT54ST-7-F         | Diodes Inc     | Digi-Key | BAT54ST-FDICT-ND        | 2     | 0.52  | 1.04  | 0     |
|                                                                         |      |     |     |     |      | <b>Resistors</b>                                                                                |                     |                |          |                         |       |       |       |       |
| R22                                                                     | 55   | 1   | 1   |     | Y    | Resistor, <b>10Ω, ±1%</b> , SMD 0402, marked as <b>10R0</b>                                     | RC0402FR-0710RL     | Yageo          | Digi-Key | 311-10.0LRCT-ND         | 10    | 0.067 | 0.67  | 9     |
| R14-R15                                                                 | 56   | 2   | 2   |     | Y    | Resistor, <b>332Ω, ±1%</b> , SMD 0402, marked as <b>3320</b>                                    | RC0402FR-07332RL    | Yageo          | Digi-Key | 311-332LRCT-ND          | 10    | 0.094 | 0.94  | 8     |
| R10-R13, R20-R21                                                        | 57   | 6   | 6   |     | Y    | Resistor, <b>510Ω, ±1%</b> , SMD 0201, marked as <b>5100</b>                                    | ERJ-1GEF5100C       | Panasonic      | Digi-Key | P510ABCT-ND             | 6     | 0     | 0     | 0     |
| R23                                                                     | 58   | 1   | 1   |     | Y    | Resistor, <b>1.27KΩ, ±1%</b> , SMD 0201, marked as <b>1271</b>                                  | ERJ-1GEF1271C       | Panasonic      | Digi-Key | P1.27KABCT-ND           | 10    | 0.11  | 1.1   | 9     |
| R3-R4, R7-R8                                                            | 59   | 4   | 4   |     | Y    | Resistor, <b>4.7KΩ, ±1%</b> , SMD 0201, marked as <b>4701</b>                                   | ERJ-1GEF4701C       | Panasonic      | Digi-Key | P4.70KABCT-ND           | 10    | 0.11  | 1.1   | 6     |
| R1-R2, R5-R6, R19                                                       | 60   | 5   | 5   |     | Y    | Resistor, <b>12.1KΩ, ±1%</b> , SMD 0201, marked as <b>1212</b>                                  | ERJ-1GEF1212C       | Panasonic      | Digi-Key | P12.1KABCT-ND           | 10    | 0.11  | 1.1   | 5     |
| R16-R18                                                                 | 61   | 3   | 3   |     | Y    | Resistor, <b>100KΩ, ±1%</b> , SMD 0201, marked as <b>1003</b>                                   | ERJ-1GEF1003C       | Panasonic      | Digi-Key | P100KABCT-ND            | 10    | 0.11  | 1.1   | 7     |
|                                                                         |      |     |     |     |      | <b>Capacitors</b>                                                                               |                     |                |          |                         |       |       |       |       |
| C19                                                                     | 62   | 1   | 1   |     | Y    | Capacitor, Ceramic Chip, X7S,20%, <b>10μF, 4V</b> , C-0603                                      | C1608X7S0G106M080AB | TDK            | Digi-Key | 445-9100-1-ND           | 1     | 0.49  | 0.49  | 0     |
| C35, C39-C40                                                            | 63   | 3   | 3   |     | Y    | Capacitor, Ceramic Chip, <b>0.01μF, 6.3V</b> , C-0201                                           | ECJ-ZEB0J103K       | Panasonic      | Digi-Key | PCC2136CT-ND            | 10    | 0.1   | 1     | 7     |
| C6-C10, C12-C16, C18, C20, C22-C30, C32, C37-C38, C41-C45, C48-C51, C53 | 64   | 34  | 34  |     | Y    | Capacitor, Ceramic Chip, <b>0.1μF, 6.3V</b> , C-0201D                                           | ECJ-ZEB0J104M       | Panasonic      | Digi-Key | PCC2336CT-ND            | 34    | 0.13  | 4.42  | 0     |
| C34                                                                     | 65   | 1   | 1   |     | Y    | Capacitor, Ceramic Chip, X7S,20%, <b>0.22μF, 6.3V</b> , C-0201                                  | C0603X7S0J224M030BC | TDK            | Digi-Key | 445-9075-1-ND           | 1     | 0.25  | 0.25  | 0     |

| DESIGNATOR                 | ITEM | QTY | EXT  | STK | ROHS |                                                                                                            | PART                         | MANUFAC             |          | VENDOR         | PURCH | UNIT  | TOTAL | NEW   |
|----------------------------|------|-----|------|-----|------|------------------------------------------------------------------------------------------------------------|------------------------------|---------------------|----------|----------------|-------|-------|-------|-------|
| NUMBER                     | #    | REQ | QTY  | CHK |      | DESCRIPTION                                                                                                | #                            | TURER               | VENDOR   | PART #         | QTY   | PRICE | TOTAL | STOCK |
| -----                      | ---- | --- | ---- | --- | ---- | -----                                                                                                      | -----                        | -----               | -----    | -----          | ----- | ----  | ----  | ----  |
| C33, C46, C54              | 66   | 3   | 3    |     | Y    | General Purpose Tantalum Chip Capacitor, <b>100µF, 6.3V</b> , 3216-12                                      | TCTAL0J107M8R                | Rohm                | Digi-Key | 511-1498-1-ND  | 3     | 0.75  | 2.25  | 0     |
| C1-C5                      | 67   | 5   | 5    |     | Y    | Capacitor, Ceramic Chip, <b>0.1µF, 10V</b> , C0402D                                                        | C0402C104K8PA<br>CTU         | Kemet               | Digi-Key | 399-3027-1-ND  | 10    | 0.083 | 0.83  | 5     |
| C17, C21, C31,<br>C52, C56 | 68   | 5   | 5    |     | Y    | Capacitor, Ceramic Chip, X7S,20%,<br><b>2.2µF, 10V</b> , C-0402                                            | C1005X7S1A225K<br>050BC      | TDK                 | Digi-Key | 445-9097-1-ND  | 5     | 0.32  | 1.6   | 0     |
| C36, C47, C55              | 69   | 3   | 3    |     | Y    | Capacitor, Ceramic Chip, X7S,20%,<br><b>22µF, 10V</b> , C-0805                                             | C2012X7S1A226<br>M125AC      | TDK                 | Digi-Key | 445-14560-1-ND | 3     | 1.01  | 3.03  | 0     |
|                            |      |     |      |     |      | <b>Inductors and LC filters</b>                                                                            |                              |                     |          |                |       |       |       |       |
| L5                         | 70   | 1   | 1    |     | Y    | SMD Inductor, <b>1µHn, 4.5A</b> , IHLP1616BZER                                                             | IHLP1616BZER<br>0M11         | Vishay              | Digi-Key | 541-1049-1-ND  | 1     | 2.63  | 2.63  | 0     |
| L6                         | 71   | 1   | 1    |     | Y    | SMD Inductor, 600 Ohm, <b>600Unknown inductance units - "OHM"</b> , 300mA, SMD 0402                        | BLM15HD601SN1<br>D           | Murata              | Digi-Key | 490-4002-1-ND  | 1     | 0     | 0     | 0     |
| L1-L4                      | 72   | 4   | 4    |     | Y    | SMD Inductor, 120 Ohm, <b>1.2A</b> , SMD 0402                                                              | MPZ1005S121C                 | TDK                 | Digi-Key | 445-2981-1-ND  | 4     | 0     | 0     | 0     |
|                            |      |     |      |     |      | <b>Connectors</b>                                                                                          |                              |                     |          |                |       |       |       |       |
| J8-J9                      | 73   | 2   | 2    |     | Y    | 0.5 mm-Pitch Right Angle FPC Connector, 10 pos., Top/Bottom Contacts, <b>50V, 0.5A</b> , SMD 5034801000    | 5034801000                   | Molex               | Digi-Key | WM1389CT-ND    | 2     | 1.08  | 2.16  | 0     |
| J4-J6                      | 74   | 3   | 3    |     | Y    | 0.5 mm-Pitch Right Angle FPC Connector, 4 pos., Top/Bottom Contacts, <b>50V, 0.5A</b> , SMD 5034800400     | 5034800400                   | Molex               | Digi-Key | WM1386CT-ND    | 3     | 0.66  | 1.98  | 0     |
| J2                         | 75   | 1   | 1    |     | Y    | Connector Receptacle Low profile Milli-Grid 2mm, 2 rows, 6contacts total, <b>500V, 2A</b> , SMD 873400624  | 0873400624                   | Molex               | Digi-Key | WM18689-ND     | 1     | 0.92  | 0.92  | 0     |
| J11                        | 76   | 1   | 1    |     | Y    | Connector eSATA/USB-A Combo, recessed, SMD 105131200                                                       | 1051312002                   | Molex               | Digi-Key |                | 0     | 0     | 0     | -1    |
| J1                         | 77   | 1   | 1    |     |      | Connector Header 40 pins, 0.5mm pitch, 5.0mm inter-board,                                                  | DF12D(5.0)-40DP-<br>0.5V(81) | Hirose              | Digi-Key | H11746CT-ND    | 1     | 2.54  | 2.54  | 0     |
| J3                         | 78   | 1   | 1    |     |      | Connector M.2 (NGFF) 67 pos, 3.2mm high, SMD 2199119                                                       | 2199119-3                    | AMP                 | Mouser   | 571-2199119-3  | 1     | 1.33  | 1.33  | 0     |
| J10                        | 79   | 1   | 1    |     | Y    | Connector Micro-USB type AB, 5 contacts, no through-holes, <b>1A</b> , 1981584-1                           | 1981584-1                    | Tyco<br>Electronics | Digi-Key | A97799CT-ND    | 1     | 1.58  | 1.58  | 0     |
| J7                         | 80   | 1   | 1    |     | Y    | Connector Receptacle Low profile Milli-Grid 1.27mm, 2 rows, 6contacts total, <b>1.75A</b> , CLP-104-02-X-D | CLP-104-02-G-D               | Samtec              | Samtec   | CLP-104-02-G-D | 1     | 1.21  | 1.21  | 0     |