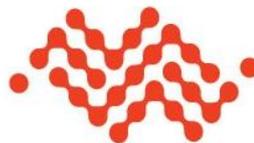




# Development Kit User Guide

## AirPrime Q26 Series



**SIERRA**  
WIRELESS

WM\_BBD\_Q26\_UGD\_001  
007  
October 05, 2010

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# Document History

| Version | Date               | Updates   |
|---------|--------------------|---|
| 001     | June 2005          | Creation (Preliminary version)  |
| 002     | Sept 2005          | Update for the development kit Q26 version2   |
| 003     | May 2006           | Update for the development kit Q26 version3 <ul style="list-style-type: none"> <li>• Add new for the parallel bus interface (for Wireless CPU Q2687 only)</li> <li>• New GPIO for CHARGER LED</li> <li>• New values around the AUDIO1 filters</li> <li>• Measure of current simplified</li> <li>• New schematics</li> </ul> |
| 004     | Sept 2006          | <ul style="list-style-type: none"> <li>• Update the document references</li> <li>• Add new for the auxiliary DAC function</li> <li>• Update the Measures of current</li> </ul>  |
| 005     | August 09, 2010    | Added information throughout the document for Q26 Extreme and Q26 Elite.  |
|         |                    | Updated information throughout the document for Q2686 Refreshed and Q2687 Refreshed.  |
|         |                    | Added section 4 Signal Name Comparison.   |
|         |                    | Updated Table 3 Pin Description of the External Board Connector (J201).   |
| 006     | September 29, 2010 | Updated section 19 Antenna Function.  |
| 006     | September 29, 2010 | Updated section 22.1 Unpacking the Development Kit Components.  |
| 007     | October 05, 2010   | Updated section 22.1 Unpacking the Development Kit Components – returned GPS antenna in the list and added a note saying it is only for use with the Q26 embedded module.   |



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# 1. Introduction

## 1.1. Overview

This document describes the AirPrime Q26 Series Development Kit (motherboard V3, reference: WM0402301-111-30) and how it integrates with the Q26 series embedded modules. The Q26 embedded modules supported by the Q26 series development kit are:

- Q2686 Refreshed which is GSM/GPRS class 10 capable
- Q2687 Refreshed which is GSM/GPRS class 10 and EDGE class 10 capable
- Q26 Extreme which is GSM/GPRS/EDGE class 10, HSUPA/HSDPA and WCDMA capable
- Q26 Elite which is CDMA2000 capable

This document also discusses the different interfaces and peripheral connections supported by the Q26 series development kit and provide schematics to facilitate the user's understanding and configuration of the development kit board for their own application use.

The Q26 Series Development Kit Board may be used to develop both software and hardware applications based on the Q26 series embedded modules.

For more information about the Q26 Series of embedded modules or the Sierra Wireless Software Suite, refer to the documents in section 1.2.1 Reference Documents.

## 1.2. References

### 1.2.1. Reference Documents

For more details, several reference documents may be consulted. The Sierra Wireless documents referenced herein are provided in the Sierra Wireless documentation package.

- [1] MOTHERBOARD Development Kit Schematics and PCB, Release 3.0  
Reference: WM0402301-110-30.
- [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline  
Reference: WA\_DEV\_Q26RD\_PTS\_002
- [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline  
Reference: WA\_DEV\_Q26RD\_PTS\_001
- [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline  
Reference: WM\_DEV\_Q26EX\_PTS\_002
- [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline  
Reference: WI\_DEV\_Q26EL\_PTS\_001
- [6] Firmware 7.43 AT Commands Manual (Sierra Wireless Software Suite 2.33)  
Reference: WM\_DEV\_OAT\_UGD\_079
- [7] AirPrime Q26Elite User Guide & AT Commands Interface Specification  
Reference: WI\_DEV\_Q26EL\_UGD\_001

## 1.2.2. List of Abbreviations

| <b>Abbreviation</b> | <b>Definition</b>            |
|---------------------|------------------------------|
| ADC                 | Analog to Digital Converter  |
| AUX                 | AUXiliary                    |
| CLK                 | CLock                        |
| CPU                 | Central Process Unit         |
| CTS                 | Clear To Send                |
| DAC                 | Digital to Analog Converter  |
| DAI                 | Digital Audio Interface      |
| DC                  | Direct Current               |
| DCD                 | Data Carrier Detect          |
| DCE                 | Data Communication Equipment |
| DSR                 | Data Set Ready               |
| DTE                 | Data Terminal Equipment      |
| DTR                 | Data Terminal Ready          |
| ESD                 | ElectroStatic Discharges     |
| GND                 | GrouND                       |
| GPI                 | General Purpose Input        |
| GPIO                | General Purpose Input Output |
| GPO                 | General Purpose Output       |
| I/O                 | Input / Output               |
| MIC                 | MICrophone                   |
| PC                  | Personal Computer            |
| PCB                 | Printed Circuit Board.       |
| PCM                 | Pulse Code Modulation        |
| PWM                 | Pulse Width Modulation       |
| RF                  | Radio Frequency              |
| RI                  | Ring Indicator               |
| RTC                 | Real Time Clock              |
| RTS                 | Request To Send              |
| RXD                 | Receive Data                 |
| SCI                 | Smart Card Interface         |
| SIM                 | Subscriber Identity Module   |
| SPI                 | Serial Peripheral Interface  |
| SPK                 | SPeaKer                      |
| TP                  | Test Point                   |
| TXD                 | Transmit Data                |
| USB                 | Universal Serial Bus         |



## 2. Q26 Series Development Kit Description

The following figure shows the top view of the Q26 Series Development Kit board. It enumerates the locations of the several ports and interfaces available.

For further information on the component design, please refer to section 23 Appendix.

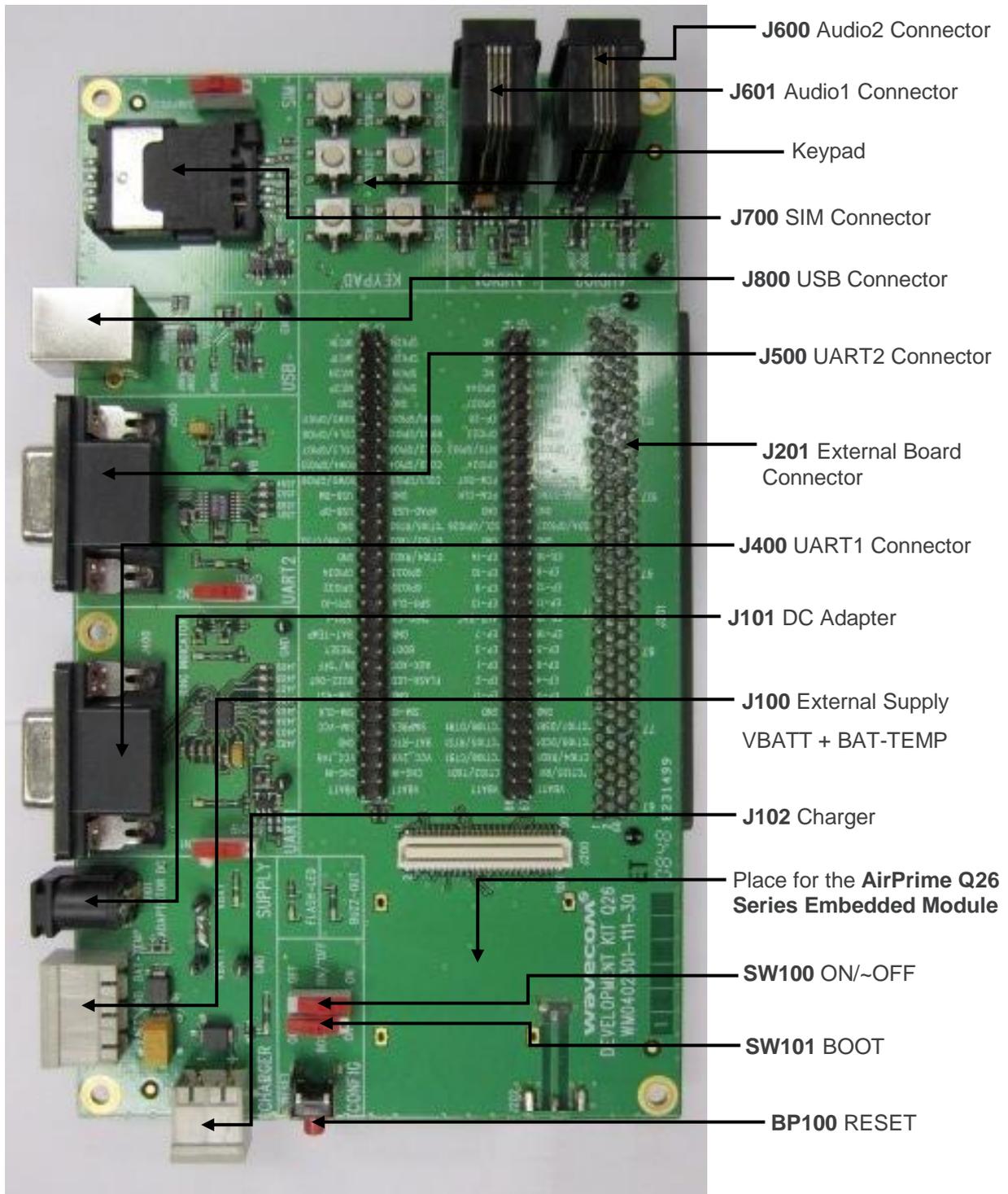


Figure 1. Q26 Series Development Kit – Top View

## >> 3. General Description

### 3.1. Q26 Series Development Kit

The Q26 series development kit is used to allow users to create and define applications using the Q2686 Refreshed, Q2687 Refreshed, Q26 Extreme or Q26 Elite embedded module.

Interfaces available on the board include:

- External board-to-board connector and TP to access all signals of the embedded module
- Parallel bus (only for the Q2687 Refreshed and Q26 Extreme)
- Main serial link RS232, UART1\* with full signals
- Ring Indicator
- Auxiliary serial link RS232, UART2\* with 4 signals
- Slave USB\*, compliant with USB 2.0
- SIM\* (with SIM presence management)
  - SIM 1.8/3V for the Q2686 Refreshed and Q2687 Refreshed
  - USIM/SIM for the Q26 Extreme
  - RUIM for the Q26 Elite (SIM presence management is not available for the Q26 Elite)
- 6-button Keypad
- AUDIO\* connectors (AUDIO1, AUDIO2)
- LEDs for several indications
- RESET Pushbutton
- Power supply connectors
- ON/OFF switch
- BOOT switch
- Buzzer LED
- Flash LED
- Charger LED (except for the Q26 Elite)

---

*Note:* \* A unique feature of the Q26 Series Development Kit is that each signal's peripherals may be electrically removed independently via special solder. For further details, refer to section 3.2 Special Solder.

---

### 3.2. Special Solder

The PCB print is used for peripherals that are electrically removable.

To connect signals between the embedded module and the dedicated connector on the Q26 Series Development Kit, solder these PCB prints.

To connect signals between the embedded module and the external board connector (J201), it is recommended to avoid soldering these PCB prints (i.e. prototype a daughterboard to connect the embedded module directly through the board connector).

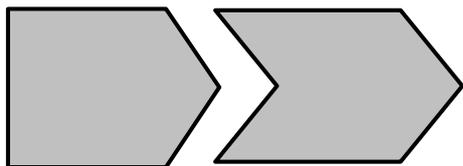


Figure 2. PCB Print

The interfaces listed below are electrically removable via the "special solder":

- UART1 (from J402 to J409)
- UART2 (from J501 to J504)
- AUDIO1 (from J602 to J605)
- AUDIO2 (from J606 to J609)
- SIM (from J701 to J705)
- USB (from J801 to J803, signals plus power)
- Power supply of the Q26 Series Development Kit (all components from J103, except for the embedded module. For further information, refer to section 21 Current Measurement).

### 3.3. RoHS Compliance

The Q26 series embedded modules and the Q26 Series Development Kit board are compliant with RoHS (Restriction of Hazardous Substances in Electrical and Electronic Equipment) Directive 2002/95/EC, which set limits for the use of certain restricted hazardous substances. This directive states that "from 1st July 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)".



Embedded modules which are compliant with this directive are identified by the RoHS logo on their label.

## 4. Signal Name Comparison

There are a total of 120 test ports available at the centre of the Q26 Series Development Kit. The following table lists the test port serigraphy and the corresponding signal names of the applicable Q26 series module.

For more information about each signal function and characteristics, refer to the corresponding embedded module document:

- document [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline
- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline
- document [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline

Table 1. Q26 Series Development Kit Test Port and Corresponding Embedded Module Signal Name

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Test Point Serigraphy | Q2686 Refreshed Signal Name | Q2687 Refreshed Signal Name | Q26 Extreme Signal Name | Q26 Elite Signal Name |
|-----------------------------|---|-----------------------|-----------------------------|-----------------------------|-------------------------|-----------------------|
| 1                           | 1-4   | VBATT                 | ADC0/VBATT                  | ADC0/VBATT                  | VBATT                   | VBATT                 |
| 2                           | 1-4   | VBATT                 | ADC0/VBATT                  | ADC0/VBATT                  | VBATT                   | VBATT                 |
| 3                           | 6, 8  | CHG-IN                | CHG-IN                      | CHG-IN                      | CHG-IN                  | CHG-IN                |
| 4                           | 6, 8  | CHG-IN                | CHG-IN                      | CHG-IN                      | CHG-IN                  | CHG-IN                |
| 5                           | 5   | VCC_1V8               | VCC_1V8                     | VCC_1V8                     | VCC_1V8                 | VCC_1V8               |
| 6                           | 10  | VCC_2V8               | VCC_2V8                     | VCC_2V8                     | VCC_2V8                 | VCC_2V6               |
| 7                           | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 8                           | 7   | BAT-RTC               | BAT-RTC                     | BAT-RTC                     | BAT-RTC                 | VCOIN                 |
| 9                           | 9   | SIM-VCC               | SIM-VCC                     | SIM-VCC                     | SIM-VCC                 | UIM-PWR               |
| 10                          | 12  | SIMPRES               | SIMPRES                     | SIMPRES                     | SIMPRES                 | GPIO2                 |
| 11                          | 14  | SIM-CLK               | SIM-CLK                     | SIM-CLK                     | SIM-CLK                 | UIM_CLK               |
| 12                          | 11  | SIM-IO                | SIM-IO                      | SIM-IO                      | SIM-IO                  | UIM_DATA              |
| 13                          | 13  | ~SIM-RST              | ~SIM-RST                    | ~SIM-RST                    | ~SIM-RST                | UIM_RESET             |
| 14                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Test Point Serigraphy | Q2686 Refreshed Signal Name | Q2687 Refreshed Signal Name | Q26 Extreme Signal Name | Q26 Elite Signal Name |
|-----------------------------|---|-----------------------|-----------------------------|-----------------------------|-------------------------|-----------------------|
| 15                          | 15  | BUZZ-OUT              | BUZZER0                     | BUZZER0                     | BUZZER0                 | VIB_DRV_N             |
| 16                          | 17  | FLASH-LED             | LED0                        | LED0                        | LED0                    | LED                   |
| 17                          | 19  | ON/~OFF               | ON/~OFF                     | ON/~OFF                     | ON/~OFF                 | ON/~OFF               |
| 18                          | 21  | AUX-ADC               | ADC2                        | ADC2                        | ADC2                    | ADC_1                 |
| 19                          | 18  | ~RESET                | ~RESET                      | ~RESET                      | ~RESET                  | RESET_N               |
| 20                          | 16  | BOOT                  | BOOT                        | BOOT                        | BOOT                    | BOOT                  |
| 21                          | 20  | BAT-TEMP              | ADC1/BAT-TEMP               | ADC1/BAT-TEMP               | BAT-TEMP                | ADC_0                 |
| 22                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 23                          | 24  | SPI1-I                | SPI1-I                      | SPI1-I                      | SPI1-I                  | GPIO34                |
| 24                          | 22  | ~SPI1-CS              | GPIO31/SPI1-Load            | GPIO31/ SPI1 Load           | GPIO31                  | GPIO32                |
| 25                          | 25  | SPI1-IO               | SPI1-IO                     | SPI1-IO                     | SPI1-IO                 | GPIO35                |
| 26                          | 23  | SPI1-CLK              | SPI1-CLK                    | SPI1-CLK                    | SPI1-CLK                | GPIO33                |
| 27                          | 26  | GPIO32                | SPI2-CLK                    | SPI2-CLK                    | SPI2-CLK                | GPIO36                |
| 28                          | 28  | GPIO35                | GPIO35/SPI2-Load            | GPIO35/SPI2-Load            | GPIO35                  | GPIO38                |
| 29                          | 29  | GPIO34                | SPI2-I                      | SPI2-I                      | SPI2-I                  | GPIO39                |
| 30                          | 27  | GPIO33                | SPI2-IO                     | SPI2-IO                     | SPI2-IO                 | GPIO37                |
| 31                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 32                          | 30  | CT104/RXD2            | CT104-RXD2                  | CT104-RXD2                  | CT104-RXD2              | RXD2                  |
| 33                          | 32  | ~CT106/CTS2           | ~CT106-CTS2                 | ~CT106-CTS2                 | ~CT106-CTS2             | CTS2                  |
| 34                          | 31  | CT103/TXD2            | CT103-TXD2                  | CT103-TXD2                  | CT103-TXD2              | TXD2                  |
| 35                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 36                          | 33  | ~CT105/RTS2           | ~CT105-RTS2                 | ~CT105-RTS2                 | ~CT105-RTS2             | RTS2                  |
| 37                          | 54  | USB-DP                | USB-DP                      | USB-DP                      | USB-DP                  | USB-DP                |
| 38                          | 52  | VPAD-USB              | VPAD-USB                    | VPAD-USB                    | VPAD-USB                | VPAD-USB              |
| 39                          | 56  | USB-DM                | USB-DM                      | USB-DM                      | USB-DM                  | USB-DM                |
| 40                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Test Point Serigraphy | Q2686 Refreshed Signal Name | Q2687 Refreshed Signal Name | Q26 Extreme Signal Name | Q26 Elite Signal Name |
|-----------------------------|---|-----------------------|-----------------------------|-----------------------------|-------------------------|-----------------------|
| 41                          | 68  | ROW0/GPIO9            | ROW0                        | ROW0                        | ROW0                    | ROW0                  |
| 42                          | 60  | COL1/GPIO5            | COL1                        | COL1                        | COL1                    | COL1                  |
| 43                          | 64  | ROW4/GPIO13           | ROW4                        | ROW4                        | ROW4                    | ROW4                  |
| 44                          | 59  | COL0/GPIO4            | COL0                        | COL0                        | COL0                    | COL0                  |
| 45                          | 62  | COL3/GPIO7            | COL3                        | COL3                        | COL3                    | COL3                  |
| 46                          | 61  | COL2/GPIO6            | COL2                        | COL2                        | COL2                    | COL2                  |
| 47                          | 63  | COL4/GPIO8            | COL4                        | COL4                        | COL4                    | COL4                  |
| 48                          | 65  | ROW3/GPIO12           | ROW3                        | ROW3                        | ROW3                    | ROW3                  |
| 49                          | 66  | ROW2/GPIO11           | ROW2                        | ROW2                        | ROW2                    | ROW2                  |
| 50                          | 67  | ROW1/GPIO10           | ROW1                        | ROW1                        | ROW1                    | ROW1                  |
| 51                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 52                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 53                          | 36  | MIC2P                 | MIC2P                       | MIC2P                       | MIC2P                   | MIC2P                 |
| 54                          | 35  | SPK1P                 | SPK1P                       | SPK1P                       | SPK1P                   | HPH_OUT_L_P           |
| 55                          | 34  | MIC2N                 | MIC2N                       | MIC2N                       | MIC2N                   | MIC2N                 |
| 56                          | 37  | SPK1N                 | SPK1N                       | SPK1N                       | SPK1N                   | HPH_OUT_R_N           |
| 57                          | 40  | MIC1P                 | MIC1P                       | MIC1P                       | MIC1P                   | LINE_IN_L_P           |
| 58                          | 39  | SPK2P                 | SPK2P                       | SPK2P                       | SPK2P                   | SPKR_OUT_P            |
| 59                          | 38  | MIC1N                 | MIC1N                       | MIC1N                       | MIC1N                   | LINE_IN_R_N           |
| 60                          | 41  | SPK2N                 | SPK2N                       | SPK2N                       | SPK2N                   | SPKR_OUT_N            |
| 66                          | 1-4   | VBATT                 | ADC0/VBATT                  | ADC0/VBATT                  | VBATT                   | VBATT                 |
| 67                          | 1-4   | VBATT                 | ADC0/VBATT                  | ADC0/VBATT                  | VBATT                   | VBATT                 |
| 68                          | 71  | CT103/TXD1            | CT103-TXD1                  | CT103-TXD1                  | CT103-TXD1              | TXD1                  |
| 69                          | 69  | ~CT125/RI1            | ~CT125-RI                   | ~CT125-RI                   | ~CT125-RI               | RI1                   |
| 70                          | 75  | ~CT106/CTS1           | ~CT106-CTS1                 | ~CT106-CTS1                 | ~CT106-CTS1             | CTS1                  |
| 71                          | 73  | CT104/RXD1            | CT104-RXD1                  | CT104-RXD1                  | CT104-RXD1              | RXD1                  |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Test Point Serigraphy | Q2686 Refreshed Signal Name | Q2687 Refreshed Signal Name | Q26 Extreme Signal Name | Q26 Elite Signal Name |
|-----------------------------|---|-----------------------|-----------------------------|-----------------------------|-------------------------|-----------------------|
| 72                          | 72  | ~CT105/RTS1           | ~CT105-RTS1                 | ~CT105-RTS1                 | ~CT105-RTS1             | RTS1                  |
| 73                          | 70  | ~CT109/DCD1           | ~CT109-DCD1                 | ~CT109-DCD1                 | ~CT109-DCD1             | DCD1                  |
| 74                          | 76  | ~CT108/DTR1           | ~CT108-2-DTR1               | ~CT108-2-DTR1               | ~CT108-2-DTR1           | DTR1                  |
| 75                          | 74  | ~CT107/DSR1           | ~CT107-DSR1                 | ~CT107-DSR1                 | ~CT107-DSR1             | DSR1                  |
| 76                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 77                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 78                          | 81  | EP-17                 | Reserved                    | /OE-R/W                     | ~OE-R/W                 | EBI2_OE_N             |
| 79                          | 85  | EP-0                  | Reserved                    | D0                          | D0                      | EBI2_AD0              |
| 80                          | 89  | EP-2                  | Reserved                    | D2                          | D2                      | EBI2_AD2              |
| 81                          | 93  | EP-4                  | Reserved                    | D4                          | D4                      | EBI2_AD4              |
| 82                          | 87  | EP-1                  | Reserved                    | D1                          | D1                      | EBI2_AD1              |
| 83                          | 97  | EP-6                  | Reserved                    | D6                          | D6                      | EBI2_AD6              |
| 84                          | 91  | EP-3                  | Reserved                    | D3                          | D3                      | EBI2_AD3              |
| 85                          | 95  | EP-5                  | Reserved                    | D5                          | D5                      | EBI2_AD5              |
| 86                          | 99  | EP-7                  | Reserved                    | D7                          | D7                      | EBI2_AD7              |
| 87                          | 83  | EP-18                 | Reserved                    | /CS3                        | GPIO44/~CS3             | EBI2_CS0_N            |
| 88                          | 82  | AUX-DAC               | Reserved                    | DAC0                        | DAC0                    | Reserved              |
| 89                          | 86  | EP-15                 | Reserved                    | D15                         | D15                     | EBI2_AD15             |
| 90                          | 90  | EP-13                 | Reserved                    | D13                         | D13                     | EBI2_AD13             |
| 91                          | 94  | EP-11                 | Reserved                    | D11                         | D11                     | EBI2_AD11             |
| 92                          | 98  | EP-9                  | Reserved                    | D9                          | D9                      | EBI2_AD9              |
| 93                          | 92  | EP-12                 | Reserved                    | D12                         | D12                     | EBI2_AD12             |
| 94                          | 96  | EP-10                 | Reserved                    | D10                         | D10                     | EBI2_AD10             |
| 95                          | 100   | EP-8                  | Reserved                    | D8                          | D8                      | EBI2_AD8              |
| 96                          | 88  | EP-14                 | Reserved                    | D14                         | D14                     | EBI2_AD14             |
| 97                          | 84  | EP-16                 | Reserved                    | /WE-E                       | ~WE-E                   | EBI2_WE_N             |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Test Point Serigraphy | Q2686 Refreshed Signal Name | Q2687 Refreshed Signal Name | Q26 Extreme Signal Name | Q26 Elite Signal Name |
|-----------------------------|---|-----------------------|-----------------------------|-----------------------------|-------------------------|-----------------------|
| 98                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 99                          | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 100                         | 44  | SCL/GPIO26            | SCL1                        | SCL1                        | SCL1                    | SCL                   |
| 101                         | 46  | SDA/GPIO27            | SDA1                        | SDA1                        | SDA1                    | SDA                   |
| 102                         | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 103                         | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 104                         | 79  | PCM-CLK               | PCM-CLK                     | PCM-CLK                     | PCM-CLK                 | PCM_CLK               |
| 105                         | 77  | PCM-SYNC              | PCM-SYNC                    | PCM-SYNC                    | PCM-SYNC                | PCM_SYNC              |
| 106                         | 80  | PCM-OUT               | PCM-OUT                     | PCM-OUT                     | PCM-OUT                 | PCM_DOUT              |
| 107                         | 78  | PCM-IN                | PCM-IN                      | PCM-IN                      | PCM-IN                  | PCM_DIN               |
| 108                         | 58  | GPIO24                | GPIO24                      | GPIO24                      | GPIO24                  | GPIO49                |
| 109                         | GND   | GND                   | GND                         | GND                         | GND                     | GND                   |
| 110                         | 50  | INT0/GPIO3            | INT0                        | INT0                        | INT0                    | GPIO7                 |
| 111                         | 48  | GPIO20                | GPIO20                      | GPIO20                      | GPIO20                  | GPIO43                |
| 112                         | 55  | GPIO23                | GPIO23                      | GPIO23                      | GPIO23                  | GPIO45                |
| 113                         | 57  | GPIO22                | GPIO22                      | GPIO22                      | GPIO22                  | GPIO46                |
| 114                         | 51  | EP-20                 | GPIO1                       | GPIO1                       | GPIO1                   | GPIO51                |
| 115                         | 53  | EP-21                 | GPIO2                       | GPIO2                       | GPIO2                   | GPIO50                |
| 116                         | 57  | GPIO21                | GPIO21                      | GPIO21                      | GPIO21                  | GPIO42                |
| 117                         | 49  | INT1/GPIO25           | INT1                        | INT1                        | INT1                    | GPIO44                |
| 118                         | 43  | GPIO44                | GPIO0                       | GPIO0                       | GPIO0                   | GPIO40                |
| 119                         | 45  | GPIO19                | GPIO19                      | GPIO19                      | GPIO19                  | GPIO41                |
| 120                         | -   | NC                    | N/A                         | N/A                         | N/A                     | N/A                   |
| 121                         | 42  | EP-19                 | Reserved                    | A1                          | A1                      | EBI2_LB_N             |
| 122                         | -   | NC                    | N/A                         | N/A                         | N/A                     | N/A                   |
| 123                         | -   | NC                    | N/A                         | N/A                         | N/A                     | N/A                   |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Test Point Serigraphy | Q2686 Refreshed Signal Name | Q2687 Refreshed Signal Name | Q26 Extreme Signal Name | Q26 Elite Signal Name |
|-----------------------------|---|-----------------------|-----------------------------|-----------------------------|-------------------------|-----------------------|
| 124                         | -   | NC                    | N/A                         | N/A                         | N/A                     | N/A                   |
| 125                         | -   | NC                    | N/A                         | N/A                         | N/A                     | N/A                   |

Aside from the test points mentioned above, there are 8 other test points available on the Q26 Series Development Kit. These test points are connected to the circuitry of the development kit.

Table 2. Additional Test Points

| Test Point Pin Number (T_P) | Signal Name | Description  |
|-----------------------------|-------------|--|
| 153                         | VBATT       | VBATT power supply   |
| 157                         | VBAT        | Refer to sections 6 Power Supply and 6.1 LED Signalization ("VBAT") for more information about the power supply for peripheral components. |
| 200                         | GND         | Ground   |
| 201                         |             |  |
| 202                         |             |  |
| 203                         |             |  |
| 400                         | V_UART      | This is the output of the 2.8V Low Dropout Regulator on the Q26 Series Development Kit motherboard for the UART1 RS232 transceiver supply. |
| 500                         | V_UART_1V8  | This is the output of the 1.8V Low Dropout Regulator on the Q26 Series Development Kit motherboard for the UART2 RS232 transceiver supply. |

## 5. External Board Connector (J201) Description

### 5.1. Q2686 Refreshed, Q2687 Refreshed, Q26 Extreme and Q26 Elite Signals

All signals of the Q2686 Refreshed, Q2687 Refreshed, Q26 Extreme and Q26 Elite modules are connected to the external board connector (J201) and are available via TP on the center of Development Kit Q26. The pin description of the J201 connector is listed in the table below.

For more information about each signal function and their corresponding multiplexes, refer to the corresponding embedded module document:

- document [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline
- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline
- document [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline

### 5.2. External Board Connector (J201)

Table 3. Pin Description of the External Board Connector (J201)

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Signal Name | I/O* | I/O Type# | Description                |
|-----------------------------|---|-------------|------|-----------|----------------------------|
| 1                           | 1-4   | VBATT       | I    | Supply    | Battery Input              |
| 2                           | 1-4   | VBATT       | I    | Supply    | Battery Input              |
| 3                           | 6, 8  | CHG-IN      | I    | Supply    | Current source input       |
| 4                           | 6, 8  | CHG-IN      | I    | Supply    | Current source input       |
| 5                           | 5   | VCC_1V8     | O    | Supply    | 1.8V digital supply output |
| 6                           | 10  | VCC_2V8     | O    | Supply    | 2.8V digital supply output |
| 7                           | GND   | GND         |      |           |                            |
| 8                           | 7   | BAT-RTC     | I/O  | Supply    | RTC back-up supply         |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Signal Name        | I/O* | I/O Type#  | Description   |
|-----------------------------|---|--------------------|------|------------|---|
| 9                           | 9   | SIM-VCC            | O    | Supply     | SIM card supply   |
| 10                          | 12  | SIMPRES/GPIO18     | I    | 1V8        | SIM card detect   |
| 11                          | 14  | SIM-CLK            | O    | 1V8 / 2V9  | SIM clock   |
| 12                          | 11  | SIM-IO             | I/O  | 1V8 / 2V9  | SIM data  |
| 13                          | 13  | ~SIM-RST           | O    | 1V8 / 2V9  | SIM reset   |
| 14                          | GND   | GND                |      |            |   |
| 15                          | 15  | BUZZ-OUT           | O    | Open Drain | PWM/Buzzer output   |
| 16                          | 17  | FLASH-LED          | O    | Open Drain | Charging indicator  |
| 17                          | 19  | ON/ ~OFF           | I    | VBATT      | Embedded Module Power ON  |
| 18                          | 21  | AUX-ADC            | I    | Analog     | Auxiliary ADC   |
| 19                          | 18  | ~RESET             | I/O  | 1V8        | Embedded Module Reset   |
| 20                          | 16  | BOOT               | I    | 1V8        | SW download (with Sierra Wireless software "DWLwin")                        |
| 21                          | 20  | BAT-TEMP           | I    | Analog     | ADC input for battery temperature measurement                               |
| 22                          | GND   | GND                |      |            |   |
| 23                          | 24  | SPI1-I/GPIO30      | I    | 2V8        | SPI1 Serial input (Multiplexed)   |
| 24                          | 22  | ~SPI1-CS/GPIO31    | O    | 2V8        | SPI1 Enable (Multiplexed)   |
| 25                          | 25  | SPI1-IO/GPIO29     | I/O  | 2V8        | SPI1 Serial input/output (Multiplexed)                                      |
| 26                          | 23  | SPI1-CLK/GPIO28    | O    | 2V8        | SPI1 Serial Clock (Multiplexed)   |
| 27                          | 26  | SPI2-CLK/GPIO32    | O    | 2V8        | SPI2 Serial Clock (Multiplexed)   |
| 28                          | 28  | SPI2-CS/GPIO35     | O    | 2V8        | SPI2 Enable (Multiplexed)   |
| 29                          | 29  | SPI2-I/GPIO34      | I    | 2V8        | SPI2 Serial input (Multiplexed)   |
| 30                          | 27  | SPI2-IO/GPIO33     | I/O  | 2V8        | SPI2 Serial input/output (Multiplexed)                                      |
| 31                          | GND   | GND                |      |            |   |
| 32                          | 30  | CT104-RXD2/GPIO15  | O    | 1V8        | Auxiliary RS232 Receive Serial Data (According to PC view and Multiplexed)  |
| 33                          | 32  | ~CT106-CTS2/GPIO16 | O    | 1V8        | Auxiliary RS232 Clear To Send (According to PC view and Multiplexed)        |
| 34                          | 31  | CT103-TXD2/GPIO14  | I    | 1V8        | Auxiliary RS232 Transmit Serial Data (According to PC view and Multiplexed) |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Signal Name        | I/O* | I/O Type# | Description  |
|-----------------------------|---|--------------------|------|-----------|--|
| 35                          | GND   | GND                |      |           |  |
| 36                          | 33  | ~CT105-RTS2/GPIO17 | I    | 1V8       | Auxiliary RS232 Request To Send (According to PC view and Multiplexed) |
| 37                          | 54  | USB-DP             | I/O  | 3V3       | Differential data interface positive                                   |
| 38                          | 52  | VPAD-USB           | I    | 3V3       | USB power supply   |
| 39                          | 56  | USB-DM             | I/O  | 3V3       | Differential data interface negative                                   |
| 40                          | GND   | GND                |      |           |  |
| 41                          | 68  | ROW0/GPIO9         | I/O  | 1V8       | Row scan (Multiplexed)   |
| 42                          | 60  | COL1/GPIO5         | I/O  | 1V8       | Column scan (Multiplexed)  |
| 43                          | 64  | ROW4/GPIO13        | I/O  | 1V8       | Row scan (Multiplexed)   |
| 44                          | 59  | COL0/GPIO4         | I/O  | 1V8       | Column scan (Multiplexed)  |
| 45                          | 62  | COL3/GPIO7         | I/O  | 1V8       | Column scan (Multiplexed)  |
| 46                          | 61  | COL2/GPIO6         | I/O  | 1V8       | Column scan (Multiplexed)  |
| 47                          | 63  | COL4/GPIO8         | I/O  | 1V8       | Column scan (Multiplexed)  |
| 48                          | 65  | ROW3/GPIO12        | I/O  | 1V8       | Row scan (Multiplexed)   |
| 49                          | 66  | ROW2/GPIO11        | I/O  | 1V8       | Row scan (Multiplexed)   |
| 50                          | 67  | ROW1/GPIO10        | I/O  | 1V8       | Row scan (Multiplexed)   |
| 51                          | GND   | GND                |      |           |  |
| 52                          | GND   | GND                |      |           |  |
| 53                          | 36  | MIC2P              | I    | Analog    | Microphone 2 positive input  |
| 54                          | 35  | SPK1P              | O    | Analog    | Speaker 1 positive output  |
| 55                          | 34  | MIC2N              | I    | Analog    | Microphone 2 negative input  |
| 56                          | 37  | SPK1N              | O    | Analog    | Speaker 1 negative output  |
| 57                          | 40  | MIC1P              | I    | Analog    | Microphone 1 positive input  |
| 58                          | 39  | SPK2P              | O    | Analog    | Speaker 2 positive output  |
| 59                          | 38  | MIC1N              | I    | Analog    | Microphone 1 negative input  |
| 60                          | 41  | SPK2N              | O    | Analog    | Speaker 2 negative output  |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Signal Name          | I/O* | I/O Type# | Description  |
|-----------------------------|---|----------------------|------|-----------|--|
| 61                          | -   | NC                   |      |           | Not connected  |
| 62                          | -   | NC                   |      |           | Not connected  |
| 63                          | -   | NC                   |      |           | Not connected  |
| 64                          | -   | NC                   |      |           | Not connected  |
| 65                          | -   | NC                   |      |           | Not connected  |
| 66                          | 1-4   | VBATT                | I    | Supply    | Battery Input  |
| 67                          | 1-4   | VBATT                | I    | Supply    | Battery Input  |
| 68                          | 71  | CT103-TXD1/GPIO36    | I    | 2V8       | Main RS232 Transmit Serial Data (According to PC view and Multiplexed) |
| 69                          | 69  | ~CT125-RI1/GPIO42    | O    | 2V8       | Main RS232 Ring indicator (According to PC view and Multiplexed)       |
| 70                          | 75  | ~CT106-CTS1/GPIO39   | O    | 2V8       | Main RS232 Clear To Send (According to PC view and Multiplexed)        |
| 71                          | 73  | CT104-RXD1/GPIO37    | O    | 2V8       | Main RS232 Receive Serial Data (According to PC view and Multiplexed)  |
| 72                          | 72  | ~CT105-RTS1/GPIO38   | I    | 2V8       | Main RS232 Request To Send (According to PC view and Multiplexed)      |
| 73                          | 70  | ~CT109-DCD1/GPIO43   | O    | 2V8       | Main RS232 Data Carrier Detect (According to PC view and Multiplexed)  |
| 74                          | 76  | ~CT108-2-DTR1/GPIO41 | I    | 2V8       | Main RS232 Data Terminal Ready (According to PC view and Multiplexed)  |
| 75                          | 74  | ~CT107-DSR1/GPIO40   | O    | 2V8       | Main RS232 Data Set Ready (According to PC view and Multiplexed)       |
| 76                          | GND   | GND                  |      |           |  |
| 77                          | GND   | GND                  |      |           |  |
| 78                          | 81  | EP17                 |      |           | Depending on the Q26 series embedded module**                          |
| 79                          | 85  | EP0                  |      |           | Depending on the Q26 series embedded module**                          |
| 80                          | 89  | EP2                  |      |           | Depending on the Q26 series embedded module**                          |
| 81                          | 93  | EP4                  |      |           | Depending on the Q26 series embedded module**                          |
| 82                          | 87  | EP1                  |      |           | Depending on the Q26 series embedded module**                          |
| 83                          | 97  | EP6                  |      |           | Depending on the Q26 series embedded module**                          |
| 84                          | 91  | EP3                  |      |           | Depending on the Q26 series embedded module**                          |
| 85                          | 95  | EP5                  |      |           | Depending on the Q26 series embedded module**                          |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Signal Name   | I/O* | I/O Type#  | Description   |
|-----------------------------|---|---------------|------|------------|---|
| 86                          | 99  | EP7           |      |            | Depending on the Q26 series embedded module**                           |
| 87                          | 83  | EP18          |      |            | Depending on the Q26 series embedded module**                           |
| 88                          | 82  | AUX-DAC       | O    | 2V3        | Digital to Analog Output; depending on the Q26 series embedded module** |
| 89                          | 86  | EP15          |      |            | Depending on the Q26 series embedded module**                           |
| 90                          | 90  | EP13          |      |            | Depending on the Q26 series embedded module**                           |
| 91                          | 94  | EP11          |      |            | Depending on the Q26 series embedded module**                           |
| 92                          | 98  | EP9           |      |            | Depending on the Q26 series embedded module**                           |
| 93                          | 92  | EP12          |      |            | Depending on the Q26 series embedded module**                           |
| 94                          | 96  | EP10          |      |            | Depending on the Q26 series embedded module**                           |
| 95                          | 100   | EP8           |      |            | Depending on the Q26 series embedded module**                           |
| 96                          | 88  | EP14          |      |            | Depending on the Q26 series embedded module**                           |
| 97                          | 84  | EP16          |      |            | Depending on the Q26 series embedded module**                           |
| 98                          | GND   | GND           |      |            |   |
| 99                          | GND   | GND           |      |            |   |
| 100                         | 44  | SCL/GPIO26    | I/O  | Open drain | Serial Clock/General purpose input-output                               |
| 101                         | 46  | SDA/GPIO27    | I/O  | Open drain | Serial Data/General purpose input-output                                |
| 102                         | GND   | GND           |      |            |   |
| 103                         | GND   | GND           |      |            |   |
| 104                         | 79  | PCM-CLK       | O    | 1V8        | Data clock  |
| 105                         | 77  | PCM-SYNC      | O    | 1V8        | Frame synchronization 8KHz  |
| 106                         | 80  | PCM-OUT       | O    | 1V8        | Data output   |
| 107                         | 78  | PCM-IN        | I    | 1V8        | Data input  |
| 108                         | 58  | GPIO24***     | I/O  | 2V8        | General purpose input/output  |
| 109                         | GND   | GND           |      |            |   |
| 110                         | 50  | INT0/GPIO3*** | I/O  | 1V8        | Interrupt 0/General purpose input-output                                |
| 111                         | 48  | GPIO20***     | I/O  | 2V8        | General purpose input/output  |

| Test Point Pin Number (T_P) | J200 (Module Board to Board Connector) Pin Number | Signal Name     | I/O* | I/O Type# | Description                                   |
|-----------------------------|---|-----------------|------|-----------|---|
| 112                         | 55  | GPIO23***       | I/O  | 2V8       | General purpose input/output                  |
| 113                         | 57  | GPIO22***       | I/O  | 2V8       | General purpose input/output                  |
| 114                         | 51  | EP20            | I/O  | 1V8       | Depending on the Q26 series embedded module** |
| 115                         | 53  | EP21            | I/O  | 1V8       | Depending on the Q26 series embedded module** |
| 116                         | 57  | GPIO21***       | I/O  | 2V8       | General purpose input/output                  |
| 117                         | 49  | INT1/ GPIO25*** | I/O  | 2V8       | Interruption 1/General purpose input-output   |
| 118                         | 43  | GPIO44***       | I/O  | 2V8       | General purpose input/output                  |
| 119                         | 45  | GPIO19***       | I/O  | 2V8       | General purpose input/output                  |
| 120                         | -   | NC              |      |           | Not connected                                 |
| 121                         | 42  | EP19            | I/O  | 1V8       | Depending on the Q26 series embedded module** |
| 122                         | -   | NC              |      |           | Not connected                                 |
| 123                         | -   | NC              |      |           | Not connected                                 |
| 124                         | -   | NC              |      |           | Not connected                                 |
| 125                         | -   | NC              |      |           | Not connected                                 |
| 126                         | -   | NC              |      |           | Not connected                                 |
| 127                         | -   | NC              |      |           | Not connected                                 |
| 128                         | -   | NC              |      |           | Not connected                                 |
| 129                         | -   | NC              |      |           | Not connected                                 |
| 130                         | -   | NC              |      |           | Not connected                                 |

\* According to the embedded module view.

\*\* Refer to Table 23 Parallel Bus Interface Signal Names and Figure 1 Q26 Series Development Kit – Top View.

\*\*\* The GPIO index varies depending on the Q26 series module used. The GPIO index specified in the table above was based on the Q26xx Refreshed and Q26 Extreme embedded modules. Please refer to section 4 Signal Name Comparison for the GPIO index used with the Q26 Elite.

# The I/O type and voltage level depends on the Q26 series embedded module used. For more information, refer to documents [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline, [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline, [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline and [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline.

# >> 6. Power Supply

Two power supply sources are available to start the Q26 Series Development Kit:

- DC external supply (via J100)
- AC/DC adapter (via J101)

These power supplies are protected by a transient voltage suppressor.

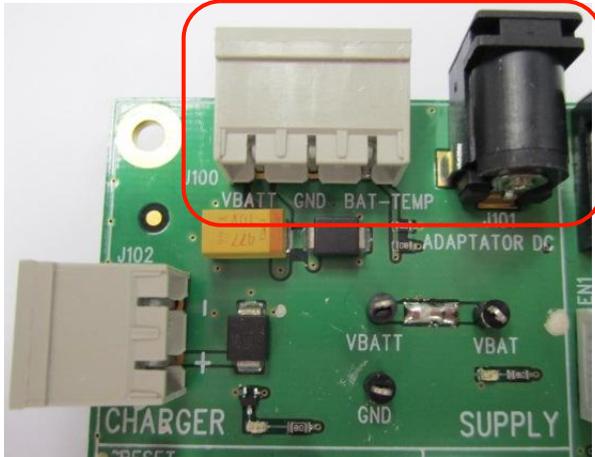


Figure 3. Power Supply Voltage (J101 and J102)

Each of these power supplies are used for both the embedded module and the peripherals on the Q26 Series Development Kit.

It is possible to separate the power supply for the embedded module ("VBATT", measurable via the TP153) and for the peripherals ("VBAT", measurable via the TP157).



Figure 4. Zoom on "J103"

Current measurement is possible between VBATT and VBAT via J103 (for more information, refer to section 21 Current Measurement).

## 6.1. LED Signalization ("VBAT")

The "VBAT" indicator is a green LED and it indicates the presence of an external power supply. Both the embedded module and the peripherals may be powered by the VBAT power source.

Table 4. LED of "VBAT"

| LED        | VBATT     | VBAT |
|------------|-----------|------|
| Light ON   | ON        | ON   |
| Light OFF* | Can be ON | OFF  |

\* If the special solder, J103, is not soldered, an extra external power supply must be used. Note that it is recommended to always use both VBATT and VBAT simultaneously.

## 6.2. External Supply

The J100 connector has three contacts:

- **J100: Pins 1-2** are used for the power supply.
- **J100: Pins 2-3** are used to plug in BAT-TEMP. Refer to section 6.3 BAT-TEMP for more information.

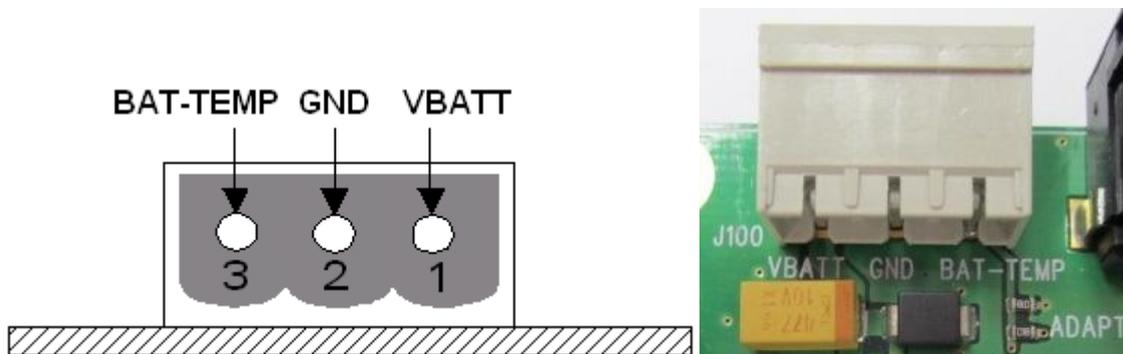


Figure 5. Power Supply Voltage

Table 5. Electrical Characteristics of VBAT

|                      | Q26 Embedded Module              | V <sub>MIN</sub> | V <sub>NOM</sub> | V <sub>MAX</sub> |
|----------------------|----------------------------------|------------------|------------------|------------------|
| VBATT <sup>1,2</sup> | Q2686 Refreshed, Q2687 Refreshed | 3.2V             | 3.6V             | 4.8V             |
|                      | Q26 Extreme                      |                  |                  |                  |
|                      | Q26 Elite                        | 3.8V             | 4.0V             | 4.2V             |

- 1 This value has to be maintained during the burst (with 2.0A Peak in GSM, GPRS, and EDGE mode)
- 2 Maximum operating Voltage Stationary Wave Ratio (VSWR) is 2:1.

## 6.3. BAT-TEMP

This signal acts as an input (ADC) to the embedded module.

J100: Pins 2-3 also allows simulation of the temperature level by a sensor inside the battery.

Table 6. Electrical Characteristics of BAT-TEMP

|          | Q26 Embedded Module              | V <sub>MIN</sub> | V <sub>NOM</sub> | V <sub>MAX</sub> |
|----------|----------------------------------|------------------|------------------|------------------|
| BAT-TEMP | Q2686 Refreshed, Q2687 Refreshed | 0                | -                | 2V               |
|          | Q26 Extreme                      |                  |                  |                  |
|          | Q26 Elite                        |                  |                  | 2.1V             |

For more information, refer to the following documents:

- document [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline
- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline
- document [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline

## 6.4. Main Supply Adapter

The J101 connector powers the Q26 Series Development Kit using the AC power supply cable.



Figure 6. Main Supply Adapter

The only supported adapter is listed in the table below.

Table 7. Main Supply Adapter Reference

| Manufacturer | Reference  | Characteristics |
|--------------|------------|-----------------|
| SINPRO       | SPU12C-101 | 4V DC/2.5 A     |

# >> 7. Charger Supply and LED

## 7.1. Charger Supply

The Q26 Series Development Kit supports a battery charging interface. Use J102 to connect to this interface.

This power supply is protected by a transient voltage suppressor.

---

*Note: When the charger is used, the battery must be connected.*

---

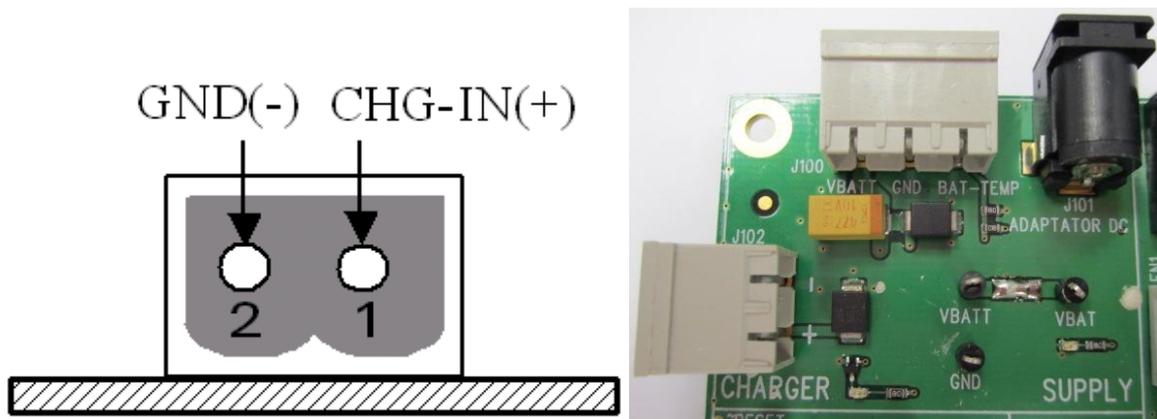


Figure 7. Charger Supply

Table 8. Power Supply Voltage

|   | Q26 Embedded Module                 | V <sub>MIN</sub> | V <sub>NOM</sub> | V <sub>MAX</sub> |
|---|-------------------------------------|------------------|------------------|------------------|
| CHG-IN Voltage<br>(for I=I <sub>max</sub> ) | Q2686 Refreshed and Q2687 Refreshed | 4.6V*            |                  | 6V               |
|   | Q26 Extreme                         | 4.8V*            |                  | 6V               |
|   | Q26 Elite                           | 4.5V             | 4.7V             | 4.9V             |

\* Parameters are set as per battery manufacturer.

## 7.2. LED Signalization ("CHARGER")

The "CHARGER" LED location is shown in the following figure.

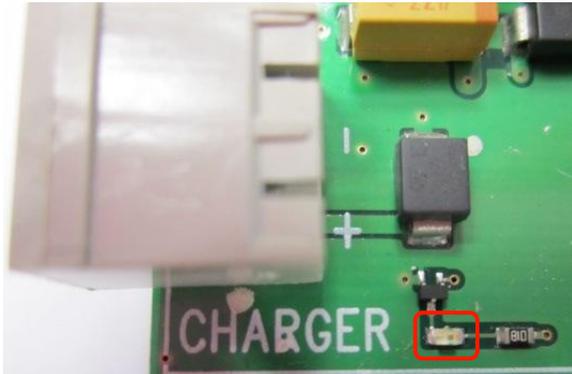


Figure 8. Charger LED Location

The "CHARGER" indicator is a red LED wired on GPIO21. This LED represents the logic level of GPIO21.

The Sierra Wireless Software Suite may be used to manage charging through AT commands. For more information, refer to documents [6] Firmware 7.43 AT Commands Manual (Sierra Wireless Software Suite 2.33) and [7] AirPrime Q26Elite User Guide & AT Commands Interface Specification.

---

*Note:* The charger indicator feature is not available for the Q26 Elite embedded module.

---



## 8. Flash LED (“FLASH-LED”)

The "FLASH-LED" location is shown in the following figure:

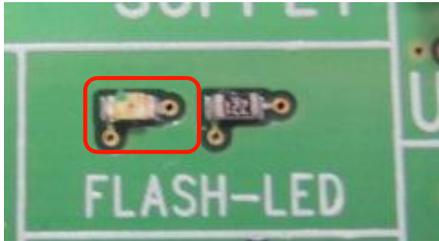


Figure 9. FLASH-LED Location

This LED works in two modes:

- The embedded module is in **OFF state**: The "FLASH-LED" blinks in pre-charging mode (via the J102 connector).
- The embedded module is in **ON state**: The "FLASH-LED" indicates the network status.

---

*Note:* This feature is available in all variants of the Q2686 Refreshed, Q2687 Refreshed and Q26 Extreme embedded modules; but only available for the Q26 Elite embedded module with R5A Firmware or later.

---

For more information, refer to the following documents:

- document [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline
- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline
- document [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline



## 9. Buzzer LED (“BUZZ-OUT”)

The "BUZZ-OUT" LED location is shown in the following figure:

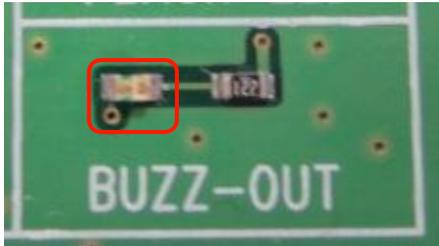


Figure 10. BUZZ-OUT Location

The "BUZZ-OUT" indicator is a yellow LED controlled by the Buzzer signal of the Q26 Series embedded modules. It is driven by a "PWM" signal (open drain).

For more information, refer to the following documents:

- document [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline
- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline
- document [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline

## >> 10. Control Functions

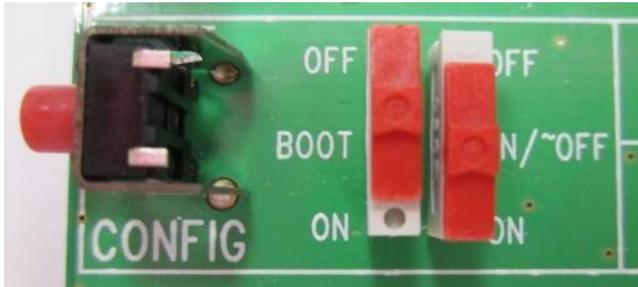


Figure 11. Switches Configuration

### 10.1. ON/~OFF

Once the Q26 Series Development Kit is connected to an external source (via J100 or J101), the ON/~OFF switch can provide power through VBATT to the embedded module when it is "ON".

After 1 second, this switch can be switched off.

For more information, refer to the following documents:

- document [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline
- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline
- document [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline

### 10.2. ~RESET

The ~RESET pushbutton starts a general reset when it is pushed.

---

*Note:* An operating system reset is preferred to a hardware reset.

---

### 10.3. BOOT

The BOOT switch is only used to download new software to the embedded module via UART1, with the specific download software provided by Sierra Wireless.

Under normal conditions, it must be in the "OFF" position.

Table 9. BOOT Configuration

| Mode   | BOOT | ON/~OFF |
|--|------|---------|
| Normal   | OFF  | ON      |
| Back-up download with specific download software | ON   | ON      |

## 11. Keypad Function

Only 6 keypads are connected on the Q26 Series Development Kit, as shown in the figure below.

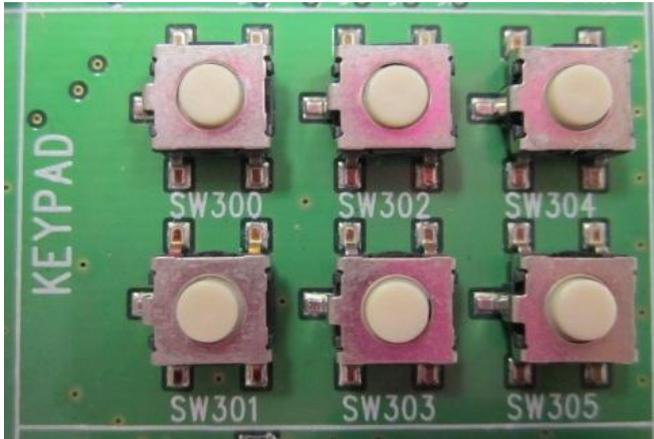


Figure 12. Keypad Configuration

Each switch on the keypad corresponds to a row and column signal on the embedded module. For example, if the key SW300 is pressed, an electric detection will be made on ROW0 and COL0.

Refer to the following table for the keyboard matrix.

Table 10. Keyboard Matrix

|      | COL0  | COL1  | COL2  | COL3  | COL4  |
|------|-------|-------|-------|-------|-------|
| ROW0 | SW300 | -     | -     | -     | -     |
| ROW1 | -     | SW301 | -     | -     | -     |
| ROW2 | -     | -     | SW302 | -     | -     |
| ROW3 | -     | -     | -     | SW303 | SW304 |
| ROW4 | -     | -     | -     | -     | SW305 |

## 12. UART1 Function

The UART1 function is the main RS232 serial link of the embedded module on the Q26 Series Development Kit. The voltage level of UART1 is 2.8V for the Q2686 Refreshed, Q2687 Refreshed and Q26 Extreme; and 2.6V for the Q26 Elite.

This function may be electrically detached with special solder (unsoldered J402 to J409). Unsoldering J402 to J409 allows UART1 signals to transmit via the external connector at J201.

By default, the UART1 is available on its dedicated connector, J400 (J402 to J409 soldered).

### 12.1. UART1 Connector (J400)

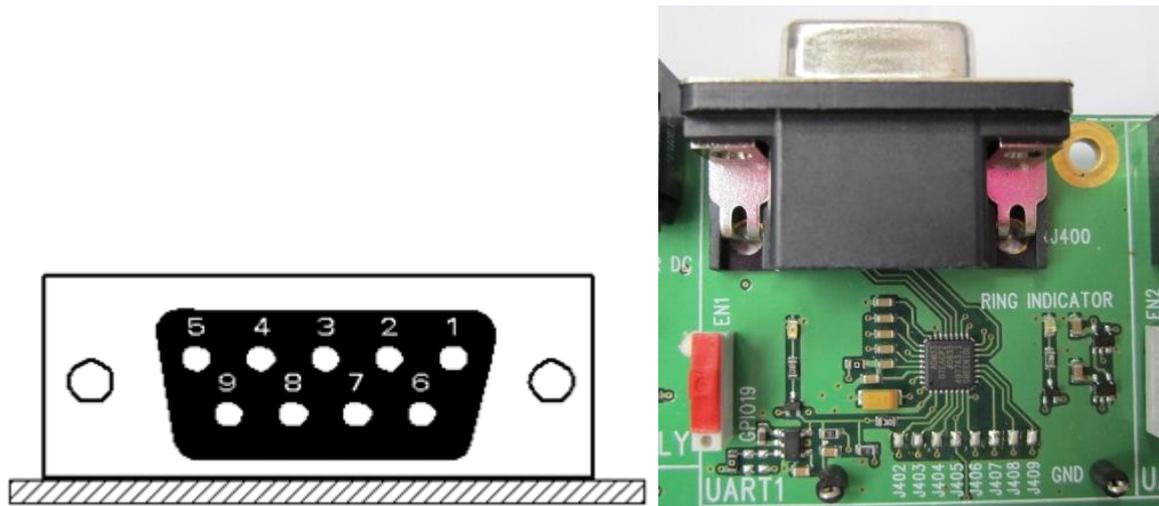


Figure 13. Enable UART1 Connector

J400 is a SUB-D 9-pin female connector. Refer to the following table for the UART1 connector pin description.

Table 11. Pin Description of the UART1 Connector

| Pin # | Signal Name | I/O | I/O Type        | Description          |
|-------|-------------|-----|-----------------|----------------------|
| 1     | CT109 DCD   | O   | RS232 (V24/V28) | Data Carrier Detect  |
| 2     | CT104 RXD   | O   | RS232 (V24/V28) | Receive serial data  |
| 3     | CT103 TXD   | I   | RS232 (V24/V28) | Transmit serial data |
| 4     | CT108-2 DTR | I   | RS232 (V24/V28) | Data Terminal Ready  |
| 5     | GND         |     |                 | Ground               |
| 6     | CT107 DSR   | O   | RS232 (V24/V28) | Data Set Ready       |
| 7     | CT105 RTS   | I   | RS232 (V24/V28) | Request To Send      |
| 8     | CT106 CTS   | O   | RS232 (V24/V28) | Clear To Send        |
| 9     | CT125 RI    | O   | RS232 (V24/V28) | Ring Indicator       |

## 12.2. UART1 Configuration

The Q26 Series Development Kit acts as a DCE and is connected to a DTE (PC or terminal) with a "straight cable". This is a full UART.

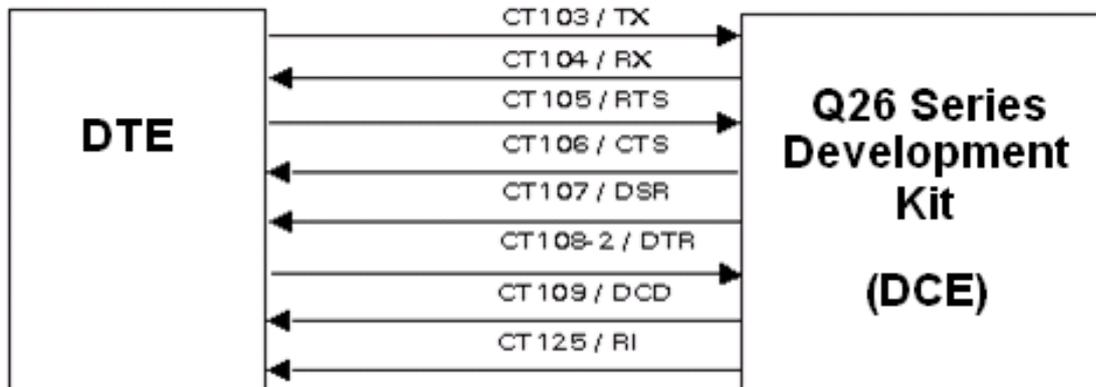


Figure 14. RS232 Main Serial Link

## 12.3. Enable UART1 ("EN1/GPIO19")

A switch, "EN1/GPIO19", may enable the shutdown mode of the RS232 transceiver. By default, the RS232 transceiver is in active mode (switch to "EN1").

For other cases, Sierra Wireless software allows customers to enable the shutdown mode by using GPIO19 for the Q2686 Refreshed, Q2687 Refreshed and Q26 Extreme; and GPIO41 for the Q26 Elite.

Table 12. Enable UART1 Configuration

| Switch "EN1/GPIO19"   | UART1            | LED "EN1" |
|---|------------------|-----------|
| EN1   | ON (in hardware) | ON        |
| <ul style="list-style-type: none"> <li>GPIO19 (for the Q2686 Refreshed, Q2687 Refreshed and Q26 Extreme)</li> </ul> | 0L               | ON        |
| <ul style="list-style-type: none"> <li>GPIO41 (for the Q26 Elite)</li> </ul>  | 1L               | OFF       |

For more information about the corresponding embedded module signal names, refer to section 4 Signal Name Comparison.

## 12.4. LED Signalization

### 12.4.1. LED "RING INDICATOR"

The "RING INDICATOR" is a yellow LED controlled by the ~CT125-R11/GPIO42 signal provided by the embedded module.

It is possible to activate a «visual» mode using AT commands. Use **AT+WRIM=0** when using the Q2686 Refreshed, Q2687 Refreshed or Q26 Extreme; **WWAKE**, **WWAKESET** and **WRID** when using the Q26 Elite. For more information about these AT commands, refer to documents [6] Firmware 7.43 AT Commands Manual (Sierra Wireless Software Suite 2.33) and [7] AirPrime Q26Elite User Guide & AT Commands Interface Specification.

When the embedded module receives an incoming call, this signal goes from high to low for 0.5 seconds alternately, hence making the LED indicator "blink".

### 12.4.2. LED "EN1"

The "EN1" indicator is a green LED controlled by the EN1, GPIO19 or GPIO41 signals provided by the embedded module. (Refer to section 4 Signal Name Comparison for more information about the signal name differences between the embedded modules.)

The "EN1" LED lights up when the RS232 transceiver is operational (refer to the configuration in Table 12 Enable UART1 Configuration).

## >> 13. UART2 Function

The UART2 function is an auxiliary RS232 serial link of the embedded module on the Q26 Series Development Kit. The voltage level of UART2 is 1.8V.

This function may be electrically detached with special solder (unsoldered J501 to J504). Unsoldering J501 to J504 allows UART2 signals to transmit via the external connector at J201.

By default, the UART2 is available on its dedicated connector, J500 (J501 to J504 soldered).

### 13.1. UART2 Connector (J500)

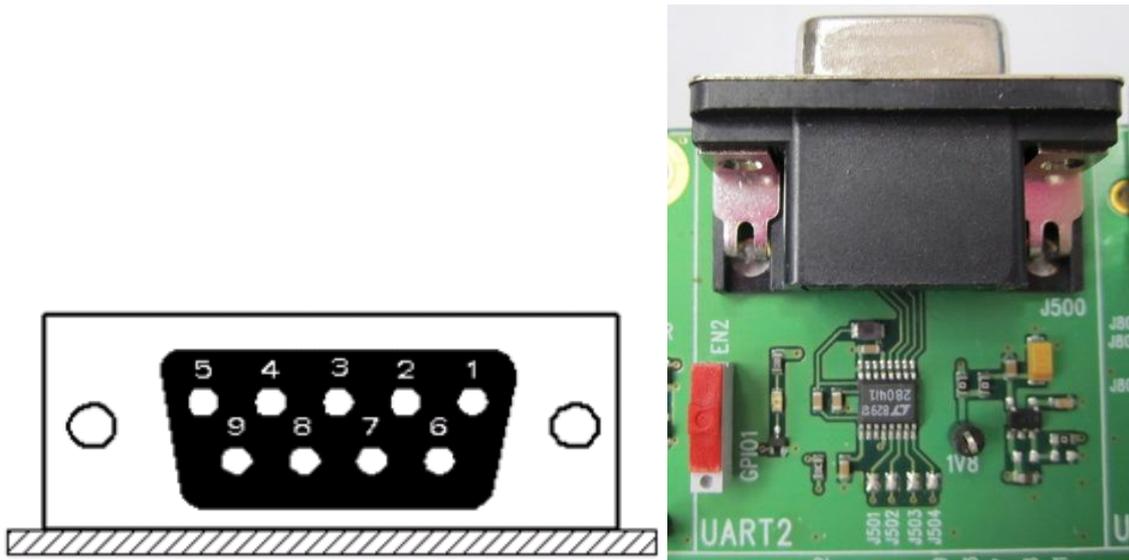


Figure 15. Enable UART2 Configuration

J500 is a SUB-D 9-pin female connector. Refer to the following table for the UART2 connector pin description.

Table 13. Pin Description of the UART2 Connector

| Pin # | Signal Name | I/O | I/O Type        | Description          |
|-------|-------------|-----|-----------------|----------------------|
| 1     | Not used*   | -   | -               | -                    |
| 2     | CT104 RXD   | O   | RS232 (V24/V28) | Receive serial data  |
| 3     | CT103 TXD   | I   | RS232 (V24/V28) | Transmit serial data |
| 4     | Not used*   | -   | -               | -                    |
| 5     | GND         |     |                 | Ground               |
| 6     | Not used*   | -   | -               | -                    |
| 7     | CT105 RTS   | I   | RS232 (V24/V28) | Request To Send      |
| 8     | CT106 CTS   | O   | RS232 (V24/V28) | Clear To Send        |
| 9     | Not used*   | -   | -               | -                    |

\* Only 4 signals are used.

## 13.2. UART2 Configuration

The Q26 Series Development Kit acts as a DCE and is connected to a DTE (PC or terminal) with a "straight cable". Note that there are only 4 signals on UART2.

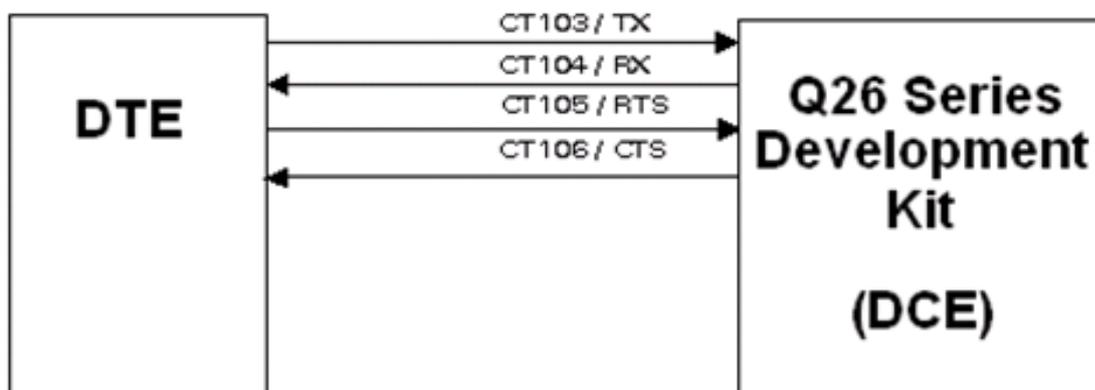


Figure 16. RS232 Auxiliary Serial Link

## 13.3. Enable UART2 ("EN2/GPIO1")

A switch, "EN2/GPIO1", may enable the shutdown mode of the RS232 transceiver. By default, the RS232 transceiver is in active mode (switch to "EN2").

For other cases, Sierra Wireless software allows customer to enable the shutdown mode by using GPIO1 for the Q2686 Refreshed, Q2687 Refreshed and Q26 Extreme; and GPIO51 for the Q26 Elite.

Table 14. Enable UART2 Configuration

| Switch "EN2/GPIO1"   |    | UART1            | LED "EN1" |
|--|----|------------------|-----------|
| EN2  |    | ON (in hardware) | ON        |
| <ul style="list-style-type: none"> <li>GPIO1 (for the Q2686 Refreshed, Q2687 Refreshed and Q26 Extreme)</li> <li>GPIO51 (for the Q26 Elite)</li> </ul> | 1L | ON               | ON        |
|  | 0L | OFF              | OFF       |

For more information about the corresponding embedded module signal names, refer to section 4 Signal Name Comparison.

## 13.4. LED Signalization ("EN2")

The "EN2" indicator is a green LED controlled by EN2, GPIO1 or GPIO51 signals provided by the embedded module. (Refer to section 4 Signal Name Comparison for more information about the signal name differences between the embedded modules.)

The "EN2" LED lights up when the RS232 transceiver is operational (see the configuration in Table 14 Enable UART2 Configuration).

## 14. SIM Function

### 14.1. SIM Connector (J700)

J700 is a standard 1V8 or 3V SIM socket.

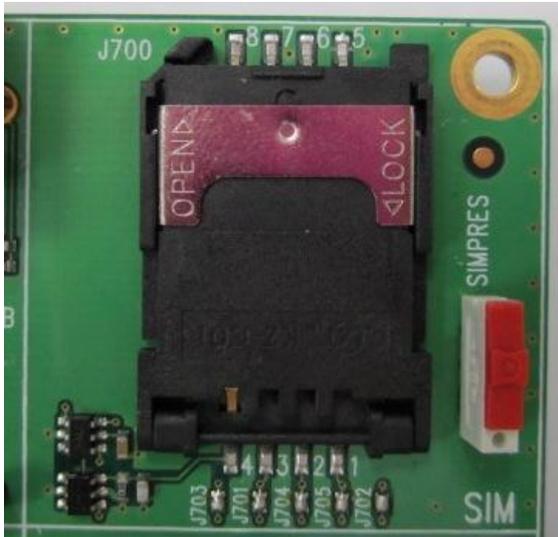


Figure 17. SIM Connector

Refer to the following table for the SIM connector pin description.

Table 15. Pin Description of the SIM Connector

| Pin # | Signal Name | I/O           | I/O Type  | Description           | Comment  |
|-------|-------------|---------------|-----------|-----------------------|--|
| 1     | SIM-VCC     | O             | 1V8 or 3V | SIM Power Supply      |  |
| 2     | SIM-RST     | O             | 1V8 or 3V | SIM Reset             |  |
| 3     | SIM-CLK     | O             | 1V8 or 3V | SIM Clock             |  |
| 4     | SIMPRES     | I             | 1V8 max*  | SIM Card Detect       | Multiplexed with GPIO18 for the Q2686 Refreshed, Q2687 Refreshed and Q26 Extreme; N/A for the Q26 Elite. |
| 5     | GND         |               |           | Ground                |  |
| 6     | VPP         | Not connected |           |                       |  |
| 7     | SIM_DATA    | I/O           | 1V8 or 3V | SIM Data              |  |
| 8     | CC8         |               | 1V8       | SIMPRES signal supply | N/A for the Q26 Elite.   |

\* Either for 1V8 or 3V SIM cards.

The SIM interface controls both 3V and 1.8V SIM cards. This function may be electrically detached with special solder (unsoldered J701 to J705). Unsoldering J701 to J705 allows SIM signals to transmit via the external connector at J201.

By default, the SIM signals are available on its dedicated connector, J700 (J701 to J705 soldered).

ESD protections are used on the 5 SIM signals.

The signal SIMPRES also presents the following options:

- If the SIMPRES signal is used by the application (detection of SIM card presence by the SIM socket), the "SIMPRES" switch must be moved to "SIMPRES" (contact 1-2 used).
- Otherwise, to simulate a SIM card presence at all times (without the SIM socket), the "SIMPRES" switch must be moved to other side (contact 2-3 used).

---

*Note: SIMPRES is not available for the Q26 Elite embedded module.*

---

Table 16. SIMPRES Configuration

| Switch "SIMPRES" | SIM Card Presence                     |
|------------------|---------------------------------------|
| SIMPRES          | Depends on the presence of a real SIM |
| Other side       | Simulates the presence of a SIM       |

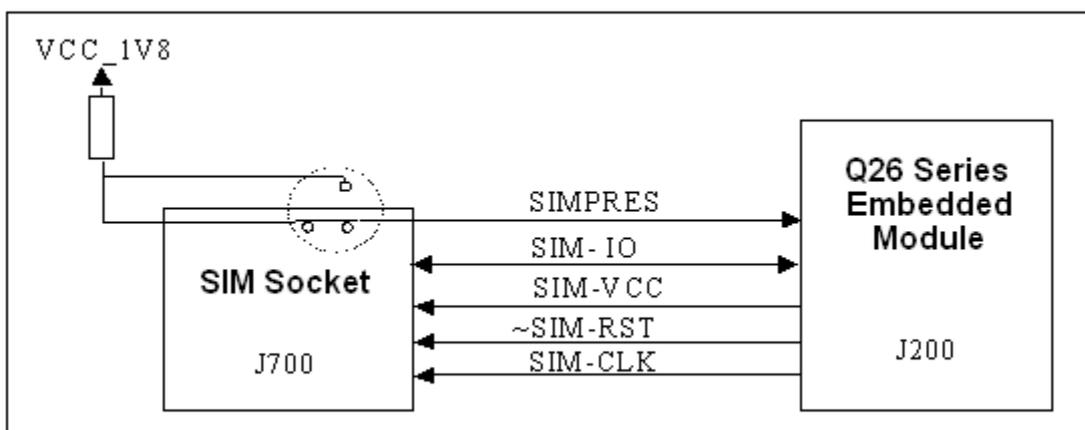


Figure 18. Schematic Diagram of the Switch "SIMPRES"

## 15. USB Function

This function may be electrically removed with special solder (unsoldered J801 to J803). Unsoldering J801 to J803 allows for the transmission of undisturbed signals via the external connector (J201).

By default, USB signals are available on its dedicated connector, J800 (J801 to J803 soldered).

ESD protections are used on the 2 USB signals.

### 15.1. USB Connector (J800)

J800 is a USB Series type B receptacle.

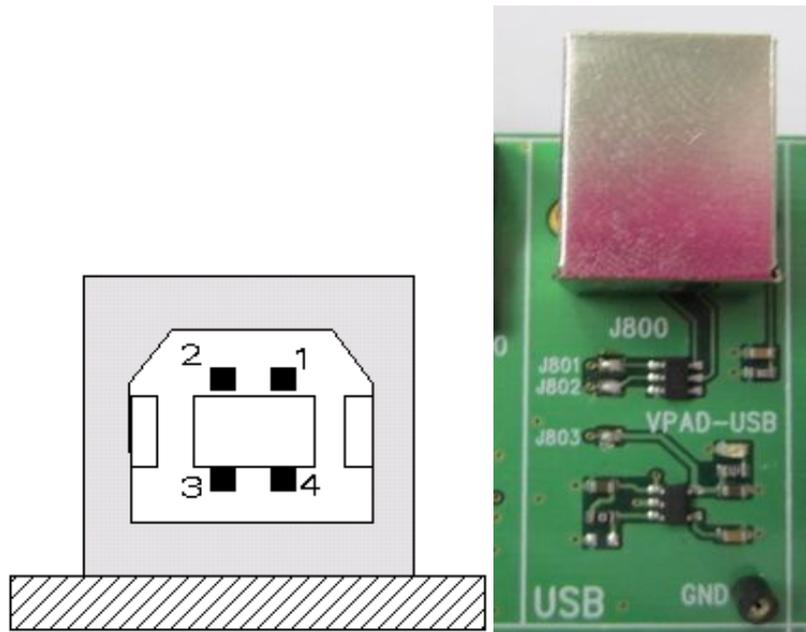


Figure 19. USB Connector

Refer to the following table for the USB connector pin description.

Table 17. Pin Description of the USB Connector

| Pin # | Signal Name | I/O | I/O Type     | Description       |
|-------|-------------|-----|--------------|-------------------|
| 1     | VBUS        | I   | Power supply | + 5 VDC           |
| 2     | DM          | I/O | Digital      | USB negative line |
| 3     | DP          | I/O | Digital      | USB positive line |
| 4     | GND         |     | Power supply | Ground            |
| Shell | Shielding   |     |              |                   |

## 15.2. LED Signalization ("VPAD-USB")

The "VPAD-USB" indicator is a green LED controlled by the presence of VBUS (when the plug is in the USB connector).

The power supply for the USB interface in the embedded module is provided by the USB connector. When a USB cable is plugged in, the LED light and VPAD-USB (the output of a regulator – LDO) is at 3.3V.

A special solder (J803) must be soldered to power the USB interface in the embedded module. This special solder, J803, is soldered by default.

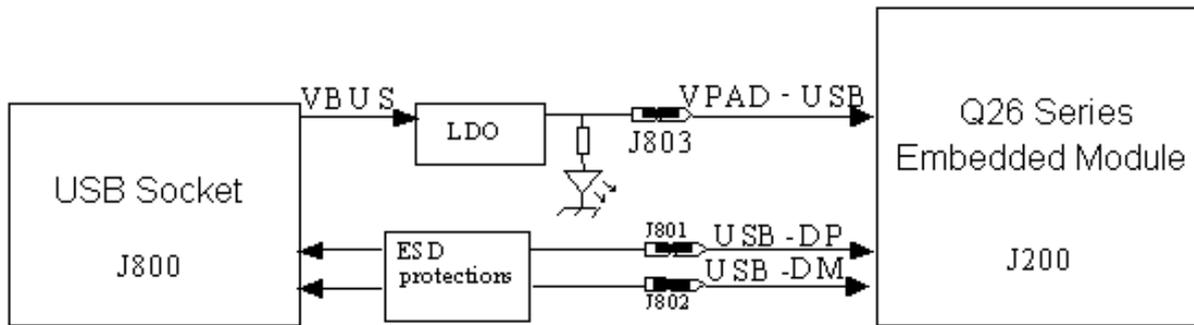


Figure 20. USB Electrical Diagram

## >> 16. AUDIO Functions

There are 2 AUDIO interfaces in the Q26 Series Development Kit.

### 16.1. AUDIO1 Connector (J601)

J601 is an RJ9 4-pin Connector.

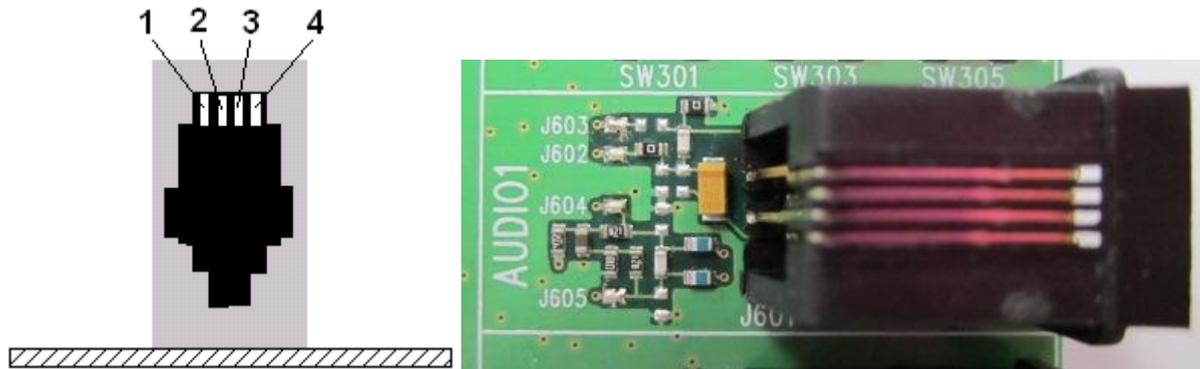


Figure 21. AUDIO1 Connector

Refer to the following tables for the AUDIO1 connector signal pin description.

Table 18. Pin Description of the AUDIO1 Connector (for the Q2686 Refreshed, Q2687 Refreshed and Q26 Extreme embedded modules)

| Pin # | Signal Name | I/O | I/O Type | Description                         |
|-------|-------------|-----|----------|-------------------------------------|
| 1     | MIC1N       | I   | Analog   | Auxiliary microphone negative input |
| 2     | SPK1N       | O   | Analog   | Auxiliary speaker negative output   |
| 3     | SPK1P       | O   | Analog   | Auxiliary speaker positive output   |
| 4     | MIC1P       | I   | Analog   | Auxiliary microphone positive input |

Table 19. Pin Description of the AUDIO1 Connector (for the Q26 Elite embedded module)

| Pin # | Signal Name | I/O | I/O Type | Description                 |
|-------|-------------|-----|----------|-----------------------------|
| 1     | LINE_IN_R_N | I   | Analog   | Microphone 1 negative input |
| 2     | HPH_OUT_R_N | O   | Analog   | Speaker 1 negative output   |
| 3     | HPH_OUT_L_P | O   | Analog   | Speaker 1 positive output   |
| 4     | LINE_IN_L_P | I   | Analog   | Microphone 1 positive input |

## 16.2. AUDIO2 Connector (J600)

J600 is an RJ9 4-pin connector.

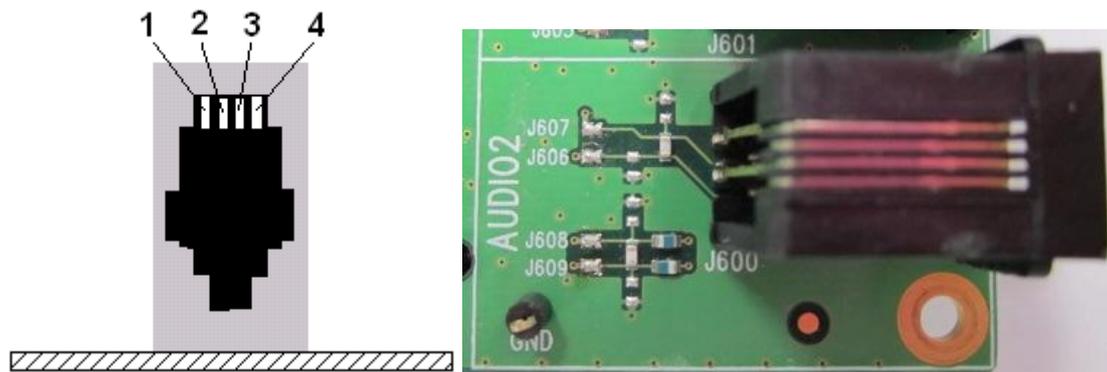


Figure 22. AUDIO2 Connector

Refer to the following tables for the AUDIO2 connector signal pin description.

Table 20. Pin Description of the AUDIO2 Connector (for the Q2686 Refreshed, Q2687 Refreshed and Q26 Extreme embedded modules)

| Pin # | Signal Name | I/O | I/O Type | Description                    |
|-------|-------------|-----|----------|--------------------------------|
| 1     | MIC2N       | I   | Analog   | Main microphone negative input |
| 2     | SPK2N       | O   | Analog   | Main speaker negative output   |
| 3     | SPK2P       | O   | Analog   | Main speaker positive output   |
| 4     | MIC2P       | I   | Analog   | Main microphone positive input |

Table 21. Pin Description of the AUDIO2 Connector (for the Q26 Elite embedded module)

| Pin # | Signal Name | I/O | I/O Type | Description                 |
|-------|-------------|-----|----------|-----------------------------|
| 1     | MIC2N       | I   | Analog   | Microphone 2 negative input |
| 2     | SPKR_OUT_N  | O   | Analog   | Speaker 2 negative output   |
| 3     | SPKR_OUT_P  | O   | Analog   | Speaker 2 positive output   |
| 4     | MIC2P       | I   | Analog   | Microphone 2 positive input |

## 16.3. AUDIO Functions Description

The AUDIO functions may be electrically removed with special solder (unsoldered J602 to J609). Unsoldering J602 to J609 allows for the transmission of undisturbed signals via the external connector (J201).

By default, AUDIO signals are available on its dedicated connector, J601 (for AUDIO1) and J600 (for AUDIO2) with J602 to J609 soldered.

AUDIO signals in the Q26 Series Development Kit should be connected to their corresponding AUDIO signals in the Q26 embedded modules. That is, AUDIO1 signals in the embedded module should be connected to AUDIO1 in the development kit; and AUDIO2 signals in the embedded module should be connected to AUDIO2 in the development kit.

Refer to the following table for a summary of the AUDIO function configuration.

Table 22. AUDIO Configuration

| Mode   | Single-Ended | Differential |
|--------|--------------|--------------|
| AUDIO2 | NO           | YES          |
| AUDIO1 | YES          | NO           |

For more information about the AUDIO functions, refer to the corresponding embedded module document:

- document [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline
- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline
- document [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline

## 17. Parallel Bus Interface

**Caution:** *This feature is not available on the Q2686 Refreshed embedded module and it is not open for customer use in the Q26 Elite embedded module.*

With the Q2687 Refreshed and Q26 Extreme, it is possible to interface applications with a 16-bit parallel bus with addresses and chip select signals (LCD, NAND FLASH,  $\mu$ P). Note that all parallel signals are in 1.8V.

These signals are available on the TP (with their names) and the external board connector (J201).

Table 23. Parallel Bus Interface Signal Names

| J201 Pins | J202 Pins | Names on Signals | Q2686 Refreshed | Q2687 Refreshed | Q26 Extreme | Q26 Elite |
|-----------|-----------|------------------|-----------------|-----------------|-------------|-----------|
| J201-78   | 81        | EP-17            | Reserved        | /OE-R/W         | ~OE-R/W     | Reserved  |
| J201-79   | 85        | EP-0             | Reserved        | D0              | D0          | Reserved  |
| J201-80   | 83        | EP-2             | Reserved        | D2              | D2          | Reserved  |
| J201-81   | 93        | EP-4             | Reserved        | D4              | D4          | Reserved  |
| J201-82   | 87        | EP-1             | Reserved        | D1              | D1          | Reserved  |
| J201-83   | 97        | EP-6             | Reserved        | D6              | D6          | Reserved  |
| J201-84   | 91        | EP-3             | Reserved        | D3              | D3          | Reserved  |
| J201-85   | 95        | EP-5             | Reserved        | D5              | D5          | Reserved  |
| J201-86   | 99        | EP-7             | Reserved        | D7              | D7          | Reserved  |
| J201-87   | 83        | EP-18            | Reserved        | /CS3*           | GPIO44/~CS3 | Reserved  |
| J201-89   | 86        | EP-15            | Reserved        | D15             | D15         | Reserved  |
| J201-90   | 90        | EP-13            | Reserved        | D13             | D13         | Reserved  |
| J201-91   | 94        | EP-11            | Reserved        | D11             | D11         | Reserved  |
| J201-92   | 98        | EP-9             | Reserved        | D9              | D9          | Reserved  |
| J201-93   | 92        | EP-12            | Reserved        | D12             | D12         | Reserved  |
| J201-94   | 96        | EP-10            | Reserved        | D10             | D10         | Reserved  |
| J201-95   | 100       | EP-8             | Reserved        | D8              | D8          | Reserved  |
| J201-96   | 88        | EP-14            | Reserved        | D14             | D14         | Reserved  |

| J201 Pins | J202 Pins | Names on Signals | Q2686 Refreshed | Q2687 Refreshed | Q26 Extreme | Q26 Elite |
|-----------|-----------|------------------|-----------------|-----------------|-------------|-----------|
| J201-97   | 84        | EP-16            | Reserved        | /WE-E*          | ~WE-E       | Reserved  |
| J201-114  | 51        | EP-20            | GPIO1           | GPIO1           | GPIO1       | GPIO51    |
| J201-115  | 53        | EP-21            | GPIO2           | GPIO2           | GPIO2       | GPIO50    |
| J201-121  | 42        | EP-19            | Reserved        | A1              | A1          | Reserved  |

\* Signal is active at low level.

The possible configurations with signals multiplexed with the Q2687 Refreshed and Q26 Extreme are:

- CS3\*, A1, GPIO1, GPIO2
- CS3\*, A1, A24, GPIO1
- CS3\*, A1, A24, A25 (this is not available for the Q26 Extreme)
- CS3\*, CS2\*, A1, GPIO2
- CS3\*, CS2\*, A1, A24

---

*Note:* \* *Signal is active at low level.*

---

For more information about these signals and their multiplexes, refer to the following documents:

- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline



## 18. DAC Function

---

**Caution:** *This feature is not available on the Q2686 Refreshed and Q26 Elite embedded modules.*

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The Q2687 Refreshed and Q26 Extreme embedded modules provide one Digital to Analog Converter, AUX-DAC. This is an 8-bit resolution DAC that ranges from 0V to 2.3V.

For further information, refer to documents [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline and [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline.

The functionality of the DAC depends on the embedded software version.

**Table 24. Pin Description of the Digital to Analog Converter**

| Pin # | Signal Name | I/O* | I/O Type | Description              |
|-------|-------------|------|----------|--------------------------|
| 88    | AUX-DAC     | O    | 2V3      | Digital to Analog Output |

\* According to embedded module view.

## >> 19. Antenna Function

The antenna is connected to the board via the UFL-SMA cable. The antenna cable is fitted with a UFL connector, allowing the connection to the board.

Three (3) UFL-SMA cables are provided with the Q26 Series Development Kit package.



Figure 23. UFL-SMA Cable

### 19.1. GSM/WCDMA Antenna

The UFL connector can be connected to the embedded module as shown in the figure below.



Figure 24. UFL Connector for use with a GSM/WCDMA Antenna

The SMA connector on the other end of the cable can then be connected to the GSM/WCDMA antenna that is also provided in the Q26 Series Development Kit package.

### 19.2. GPS Antenna

The UFL connector can be connected to the embedded module as shown in the figure below.

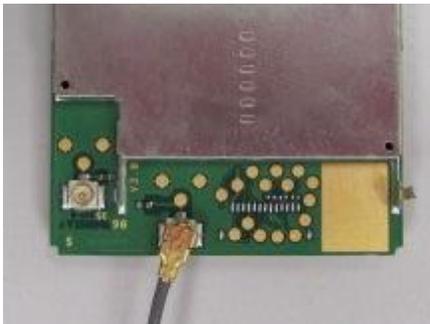


Figure 25. UFL Connector for use with a GPS Antenna

The SMA connector on the other end of the cable can then be connected to the GPS antenna that is also provided in the Q26 Series Development Kit package.

---

**Note:** *The GPS antenna can only be used with the Q26 Elite embedded module.*

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## 20. ESD Functions

External ESD protections are added on the Q26 Series Development Kit for the following signals:

- SIM interface signals: SIMPRES, SIM-VCC, SIM-IO, SIM-CLK, and SIM-RST ( $\pm 15\text{kV}$ , air discharge).
- USB interface signals: USB-DP and USB-DM ( $\pm 15\text{kV}$ , air discharge).

Other interface signals protected on the embedded module are:

- UART1 signals with the ADM3307 transceiver ( $\pm 15\text{kV}$ , air discharge)
- UART2 signals with the LTC2804 transceiver ( $\pm 10\text{kV}$ , air discharge)

---

**Warning:** *As the test points at the center of the Q26 Series Development Kit are not protected against ESD discharge and they are directly connected to the signal pins of the Q26 series embedded module, users must be careful when using these TP signals.*

---

# >> 21. Current Measurement

To measure the current consumed by the embedded module, use the configuration enumerated in the sub-sections below and as shown in Figure 26 Configuration for the Current Measurement.

---

**Caution:** *Do not solder the special solder, J103.*

---

## 21.1. On UART1

- Remove R408
- Place R406=0Ω (like R408)

## 21.2. On UART2

- Remove R502 and R505
- Place R506=0Ω (like R502)
- The UART2 link is not used; therefore J501, J502, J503, and J504 must be open (by removing the solder)
- The switch UART2 must be switched to the "GPIO1" position

## 21.3. On BAT-TEMP

- Remove R100
- Plug an external power supply like VCC-EXT on "VBAT" (+) and (GND) on "GND" (-). This power supply may be set to 4V. Setting it up like this allows for peripherals to be used.

## 21.4. On USB

The USB link is not used; therefore J801, J802, and J803 must be open (by removing the solder).

With this configuration, the consumption current from VBATT is ONLY that of the embedded module plugged in.

For more information, refer to the following documents:

- document [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline
- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline
- document [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline

---

**Note:** *Before doing any modification, ensure that the Q26 Series Development Kit is disconnected from the power supply during setup and configuration. Use pewter and a soldering iron (refer to WS80 from Weller) to solder.*

---

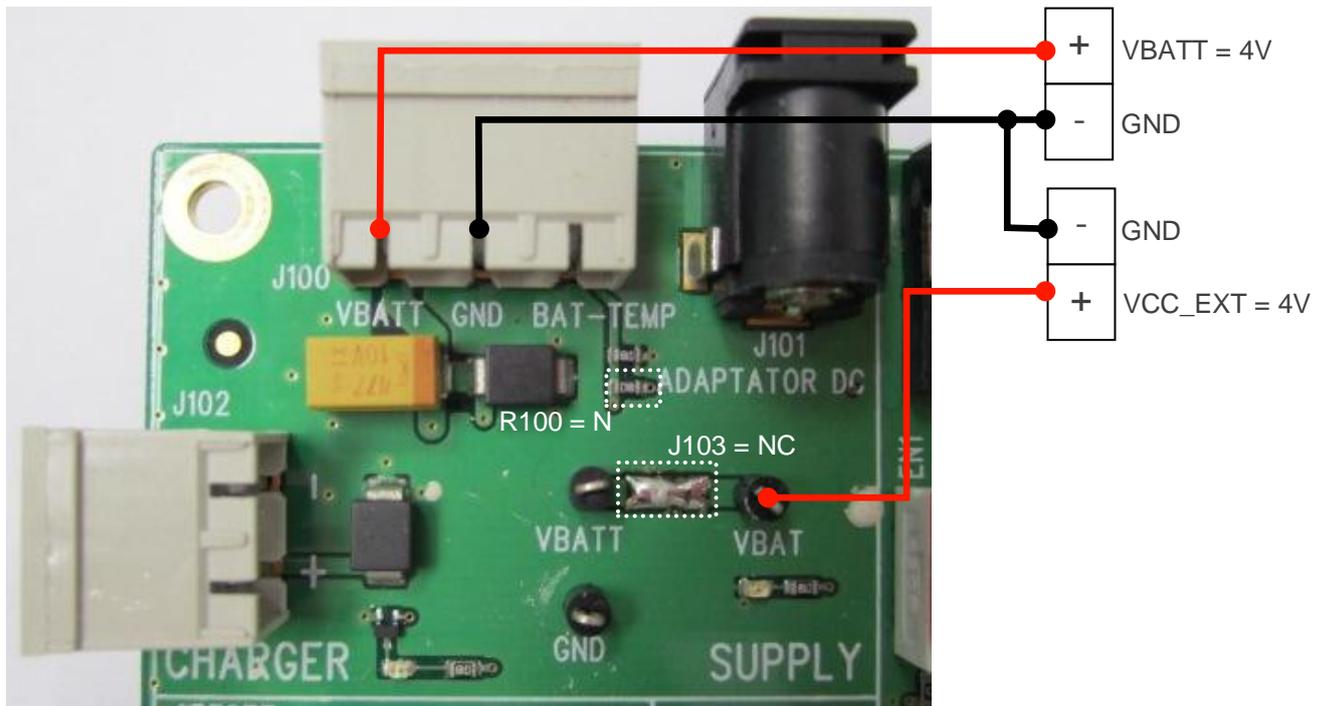


Figure 26. Configuration for the Current Measurement

## 22. Starting Procedure

### 22.1. Unpacking the Development Kit Components

The Q26 Series Development Kit box contains:

- 1 Q26 Series Development Kit board
- 2 AirPrime Q2687 Refreshed embedded modules
- Antenna
  - 1 SMA Antenna for GSM and WCDMA
  - 1 GPS Antenna

---

*Note: The GPS antenna is only for use with the Q26 Elite embedded module.*

---

- Connectors
  - 1 2-pin power supply connector
  - 5 100-pin board to board connectors
  - 1 130-pin board to board connector for the test board
- Cables
  - 1 Power cable
  - 3 UFL-SMA RF cables
  - 1 RS232 cable
  - 1 USB cable
  - 1 RJ9 cable (for handset)
- 1 AC/DC adapter
- 1 Handset
- 1 Pen drive containing the SDK + documentation

## 22.2. Setting the Accessories

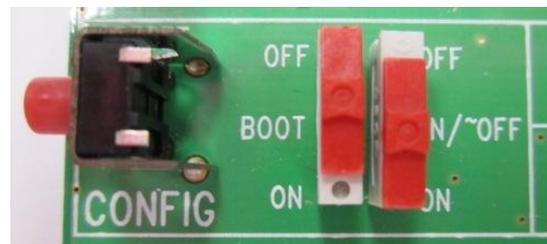
Follow the instructions shown below step by step:

1. Insert a SIM or USIM card into the SIM card holder, **J700**, when using a Q2686 Refreshed, Q2687 Refreshed or Q26 Extreme embedded module if communications are required.

Insert a RUIM card into the SIM card holder, **J700**, when using a Q26 Elite embedded module if there is no carrier provisioned inside the Q26 Elite and if communications are required.



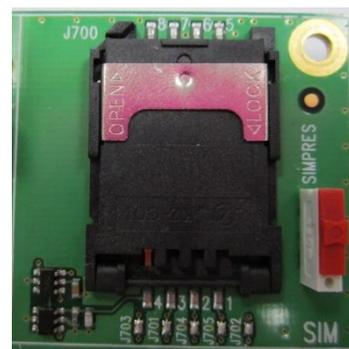
2. Make sure that:
  - The "ON/OFF" switch is in the "ON" position
  - The "BOOT" switch is in the "OFF" position



3. Also make sure that:
  - The UART1 switch is in the "EN1" position.
  - The UART2 switch is in the "EN2" position.
  - The SIM switch is in the "SIMPRES" position.

**Note:** *SIMPRES is not available for the Q26 Elite.*

- All special solders are soldered.



- Connect the RS232 cable, provided with the Q26 Series Development Kit, between the PC port and **J400** of the board.

---

*Note:* By default, baud rate = 115.2Kbps, data bits = 8, parity = N, and stop bits = 1.

---



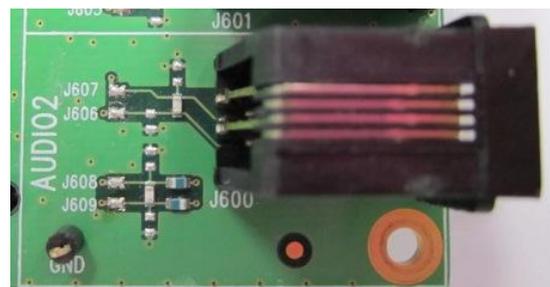
- Use the UFL-SMA RF cable and connect one end to the embedded module; and the other end to an appropriate antenna depending on which Q26 series embedded module is being used.

---

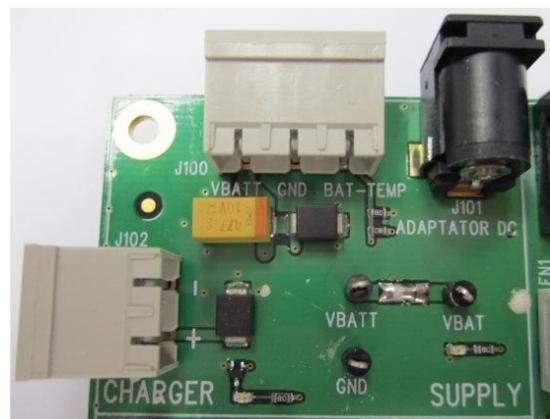
*Note:* The antenna would vary depending on the embedded module used. Refer to the corresponding module specification document in section 1.2.1 Reference Documents for more information.

---

- Connect the handset, provided with the Q26 Series Development Kit, to the Main AUDIO connector, **J600** (if communications are required).



- Plug the power supply via the adapter, J101 or via the external power supply, J100 at 4V/2.5A.



## 22.3. Communication Test

To perform a communications test after setting the Q26 Series Development Kit with a Q26 series embedded module, do the following:

1. Using a PC terminal emulator, send the following command on the COM port to communicate with the Q26 series embedded module:

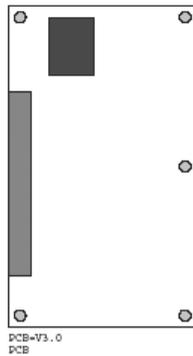
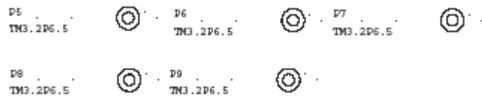
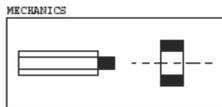
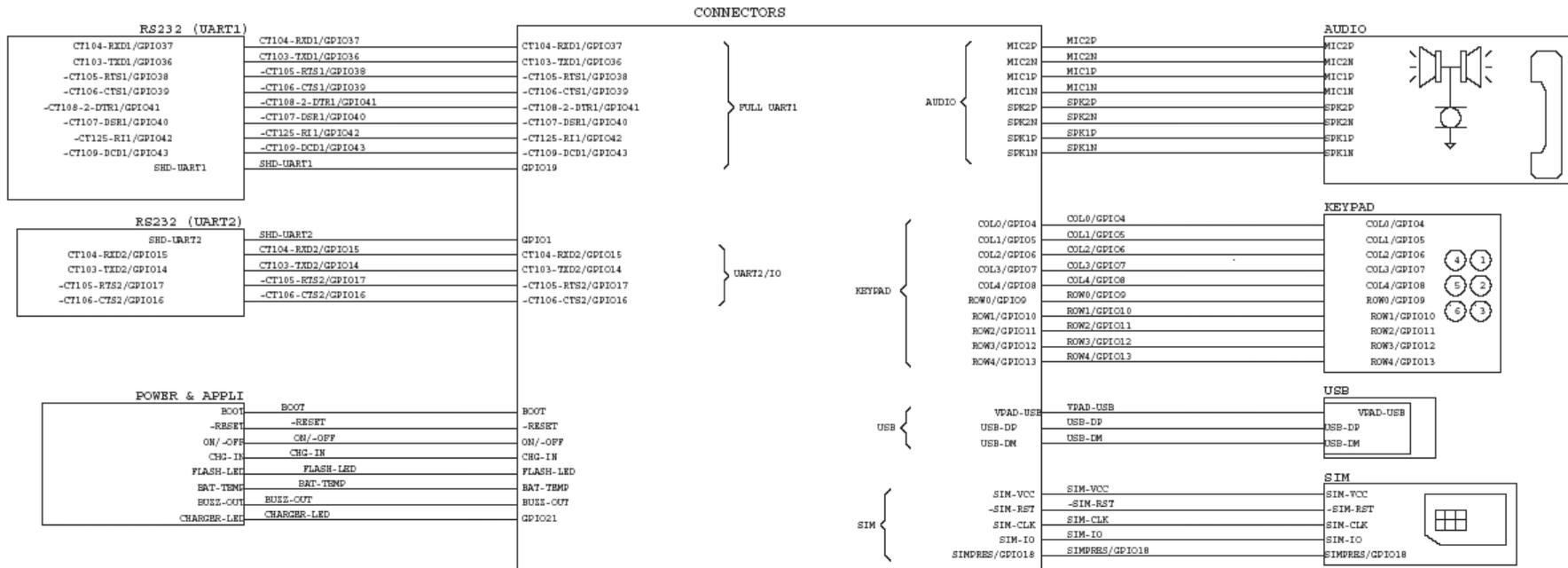
**AT↵**

2. When communications is established between the PC and the embedded module, the embedded module replies with an "OK". The message is displayed in the terminal emulator window.

For more information, refer to the following documents:

- document [2] AirPrime Q2686 Refreshed Product Technical Specification and Customer Design Guideline
- document [3] AirPrime Q2687 Refreshed Product Technical Specification and Customer Design Guideline
- document [4] AirPrime Q26 Extreme Product Technical Specification and Customer Design Guideline
- document [5] AirPrime Q26 Elite Product Technical Specification and Customer Design Guideline



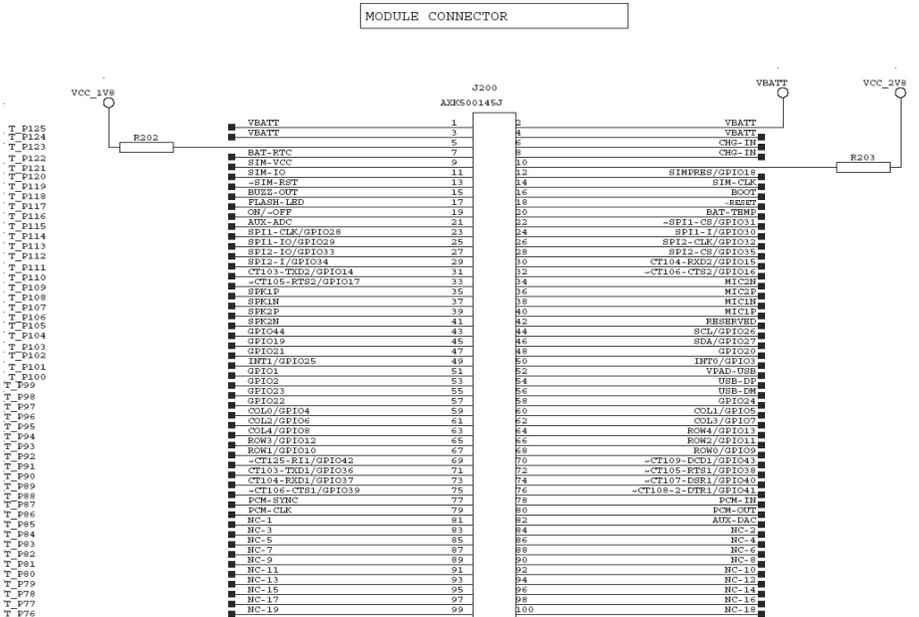
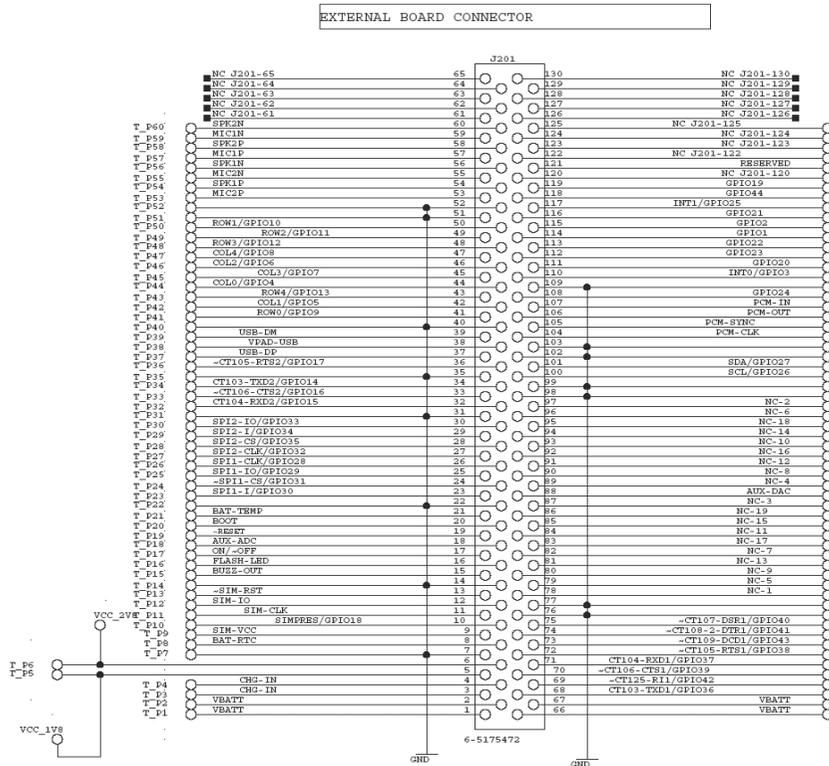


**SIERRA WIRELESS™**

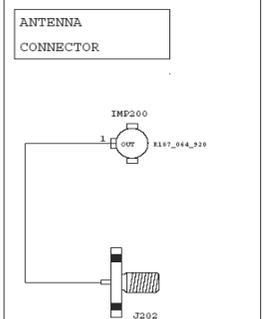
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SCHMATIC: HIERARCHIC

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| checked by:  | FDL      |
| verified by: | FDL      |
| made by:     | Q2I      |
| Sheet:       | 0/8      |



**NOTES:**  
 The SMA and IMP connectors are not mounted on the Q26 Series Development Kit Board.  
 Refer to section 17 Parallel Bus Interface for information regarding the parallel bus.



PROJECT: DEVELOPMENT KIT Q26

SCHEMATIC: CONNECTORS

Date: 23/01/05

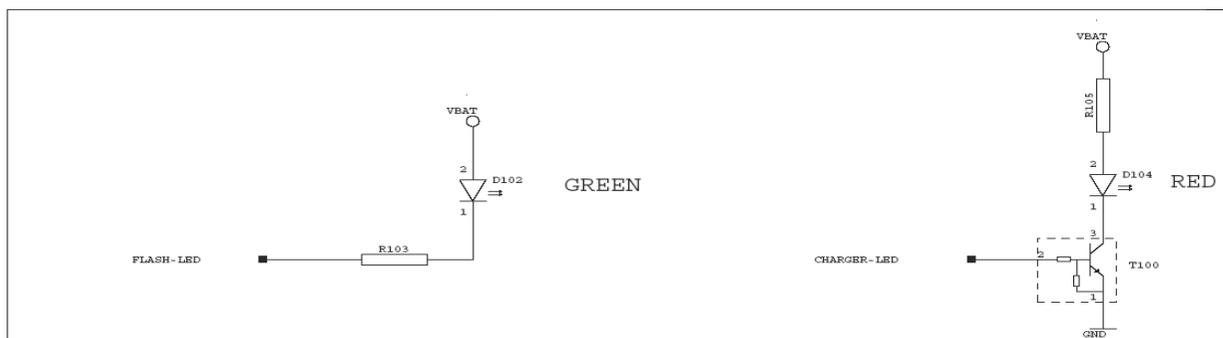
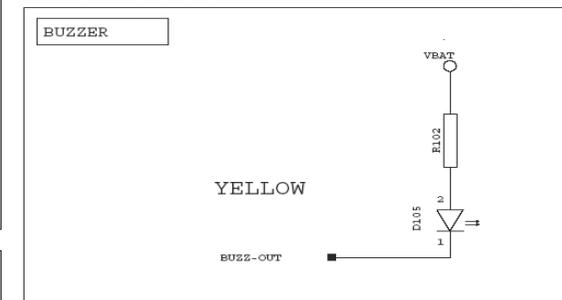
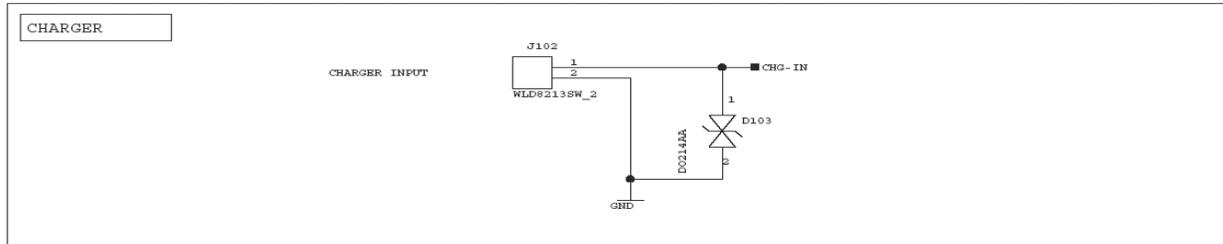
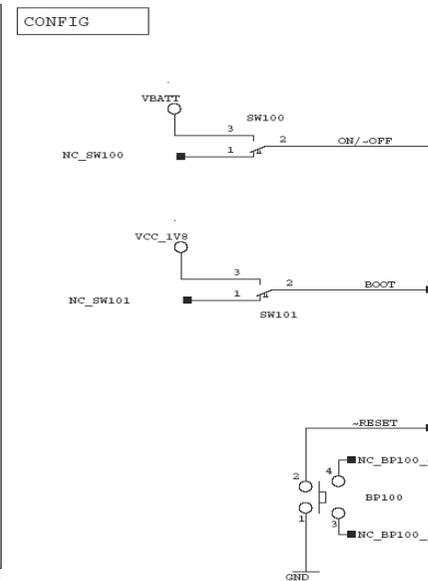
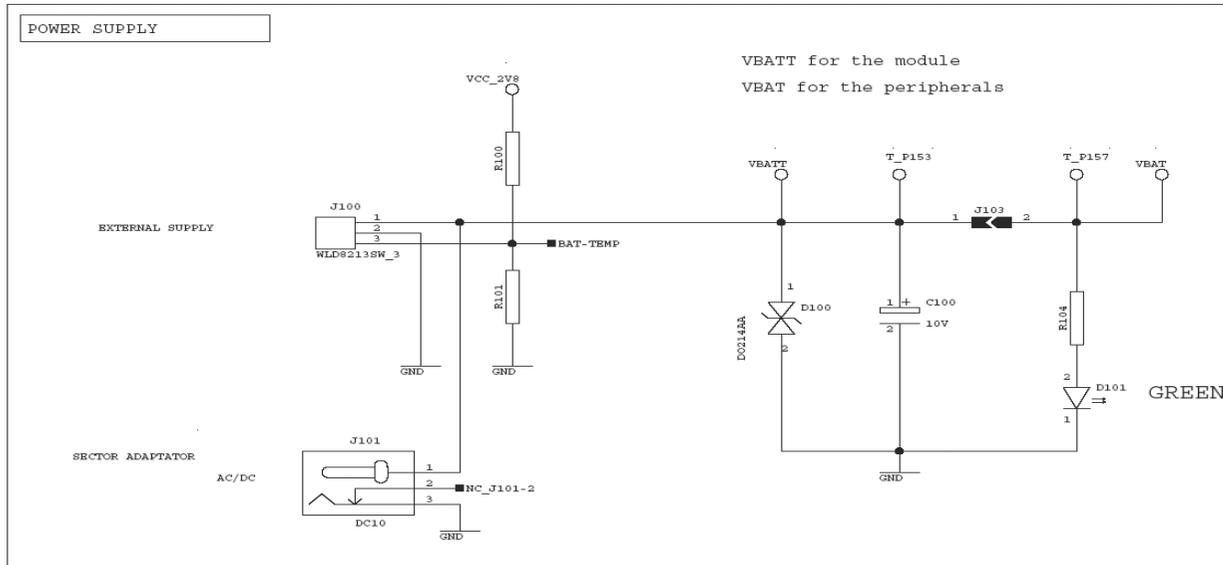
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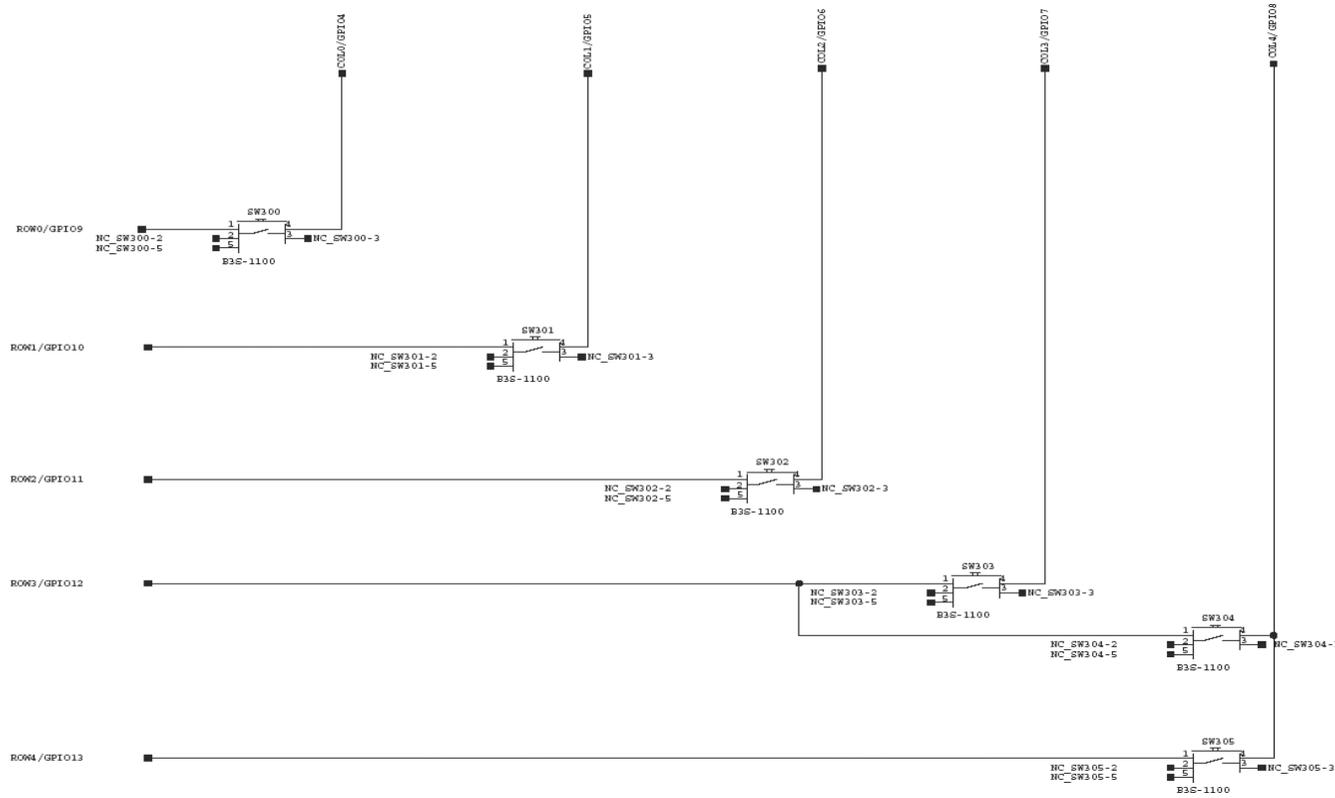


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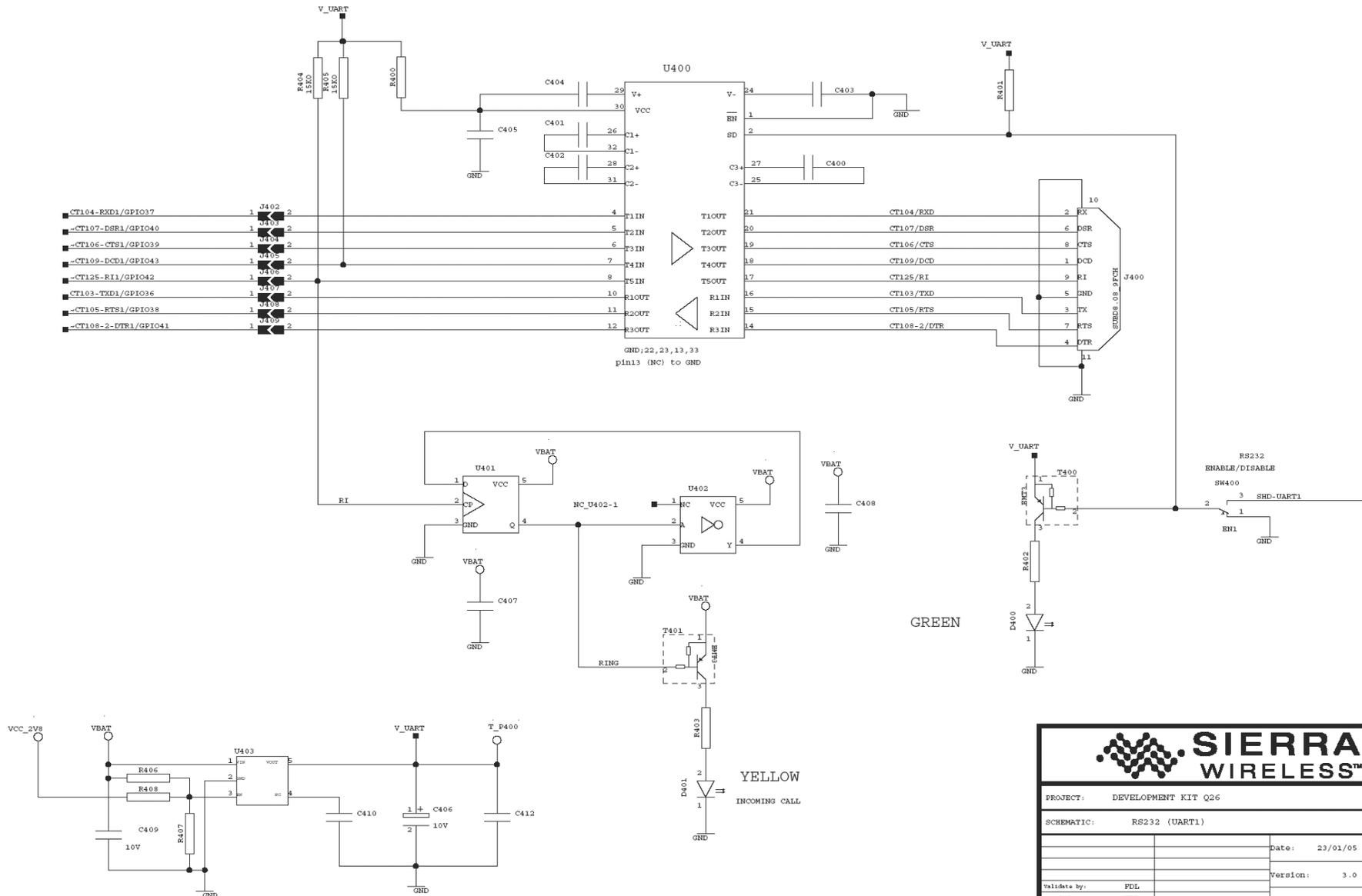
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SCHEMATIC: POWER + CTRL

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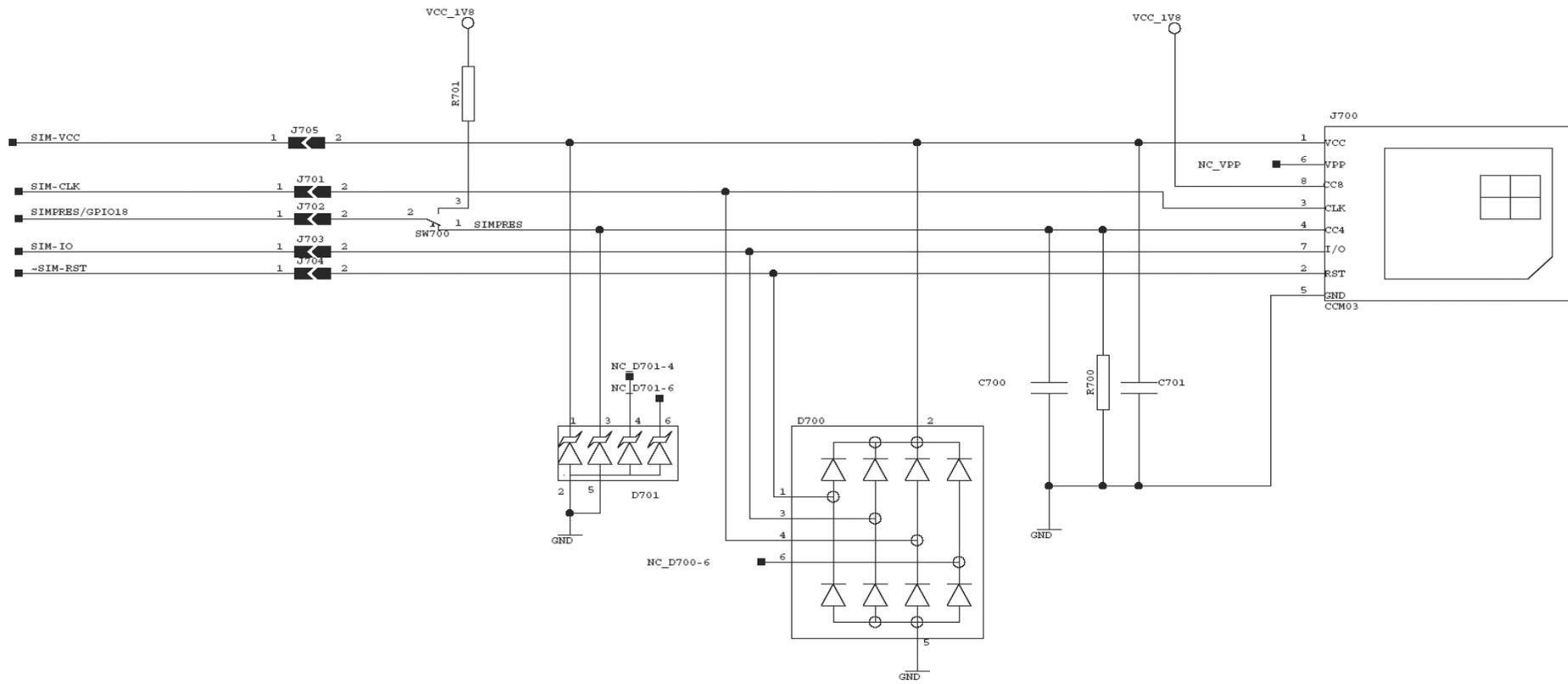


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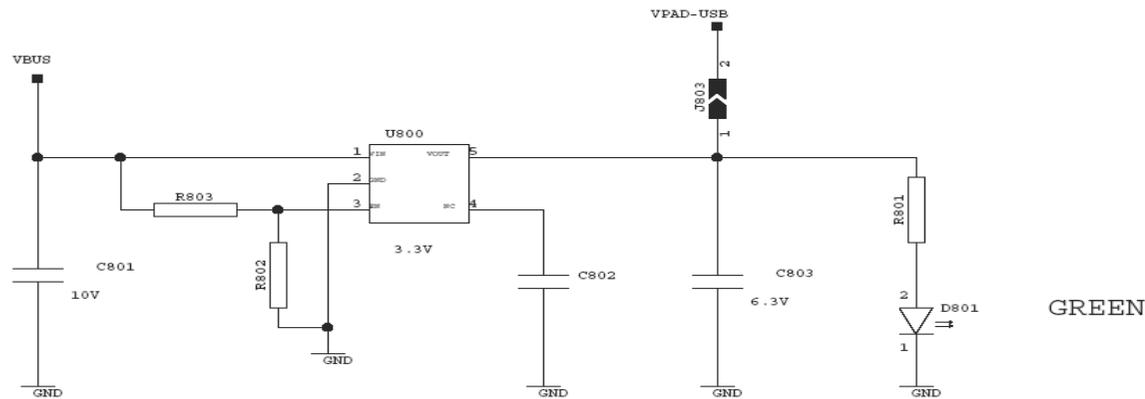
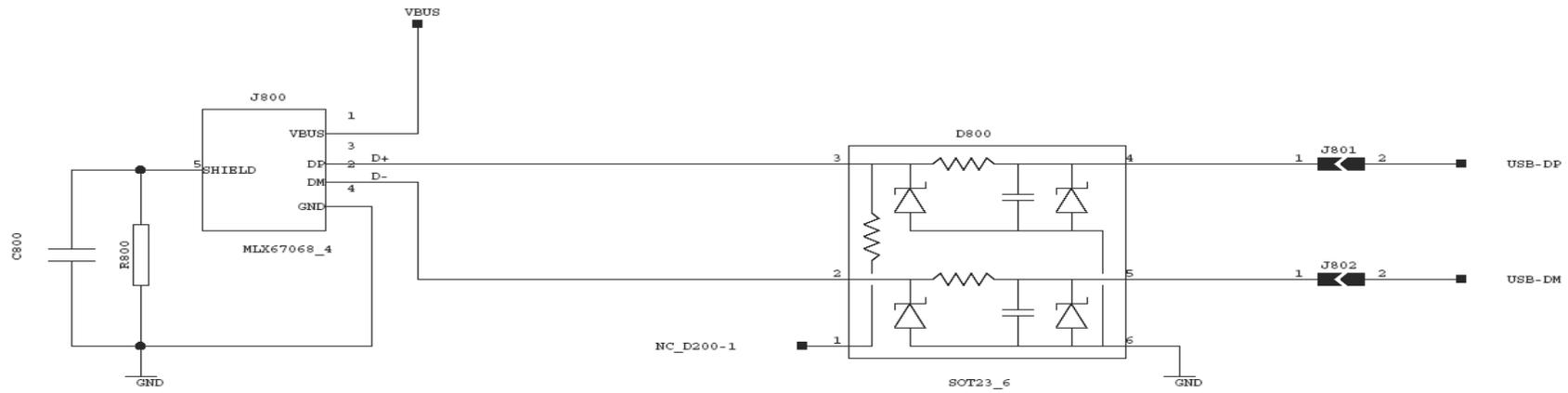


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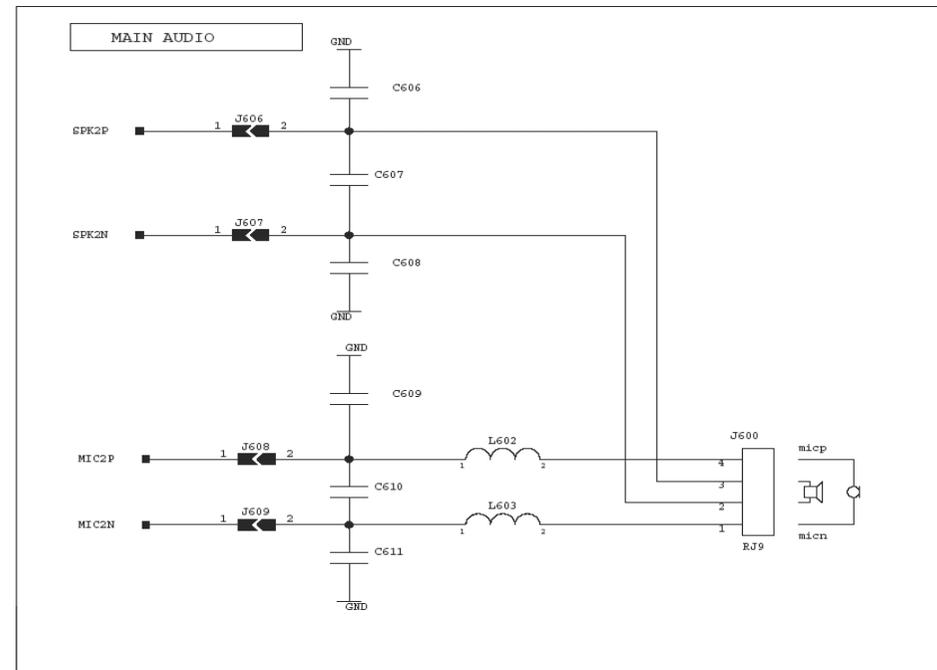
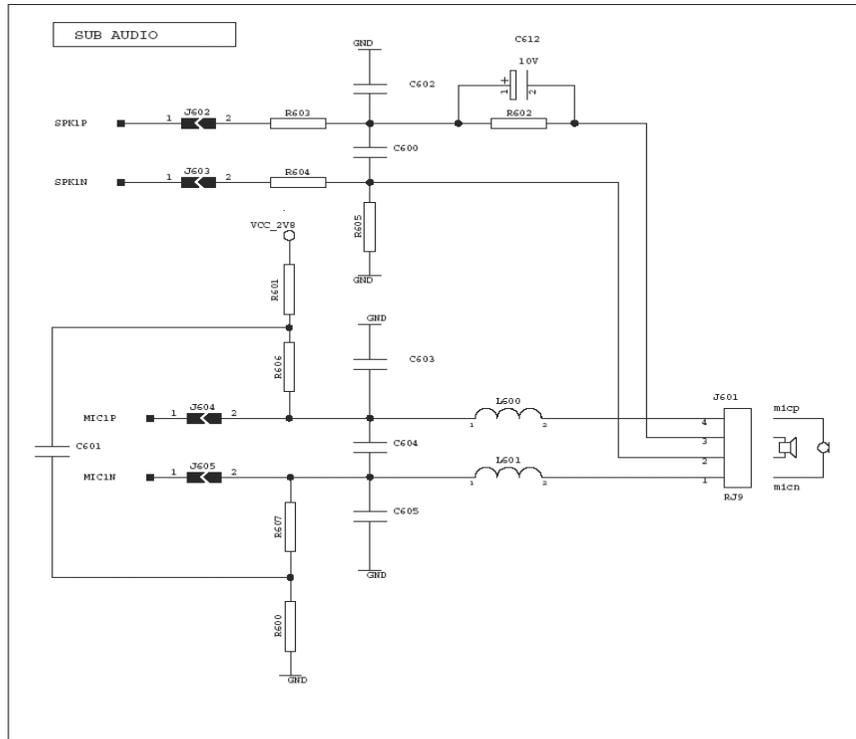




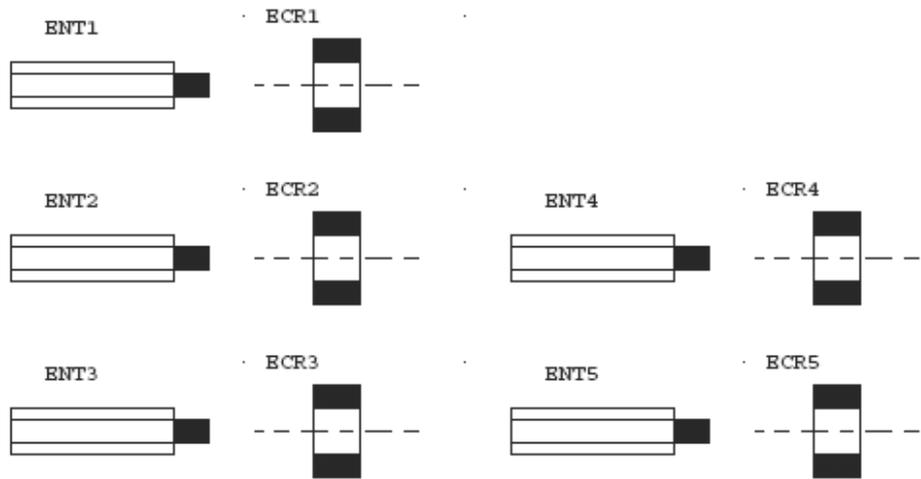
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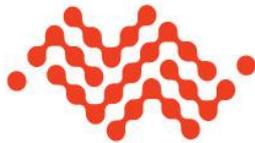
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| Make-by: GGI  |             |



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| Wesley sy. PDL  |                |
| Wesley sy. Q26  |                |



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