Development Kit User Guide

AirPrime WS Series

SIERRA WIRELESS

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Document History

Version	Date	Updates
1.0	December 12, 2011	Creation

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1. Overview

This document describes the AirPrime WS Series Development Kit (board version 1400682-B) and how it integrates with the AirPrime WS Series of Intelligent Embedded Module via a socket board. This document introduces the different interface and peripheral connections supported by the AirPrime WS Series Development Kit, and provides schematics to facilitate the user's understanding and configuration of the development kit board for their own application use.

The AirPrime WS Series Development Kit Board has been designed for customers to develop both software and hardware applications based on the AirPrime WS Series embedded module (WISMO218, WISMO228, and WS6318). Note however that in order to use the development kit with the embedded module, the embedded module must be soldered-down to an appropriate socket board.

For more information about the AirPrime WS Series of embedded modules and the Sierra Wireless Software Suite, refer to the documents listed in section 9 Reference Documents.

2. General Description

This section gives a brief overview of the AirPrime WS Series Development Kit and briefly describes the interfaces and special jumper pads available. It also lists all available test points on the development kit board.

2.1. RoHS Compliance

The AirPrime WS Series Development Kit board is compliant with RoHS (Restriction of Hazardous Substances in Electrical and Electronic Equipment) Directive 2002/95/EC which sets 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) or polybrominated diphenyl ethers (PBDE)”.

The WS Series embedded module (WISMO218, WISMO228, and WS6318) are also compliant with this directive.

RoHS COMPLIANT 2002/95/EC

2.2. AirPrime WS Series Development Kit

The AirPrime WS Series Development Kit may be used to create and define applications based on the AirPrime WS Series embedded module.

The development kit version number is printed on the bottom edge of the board.

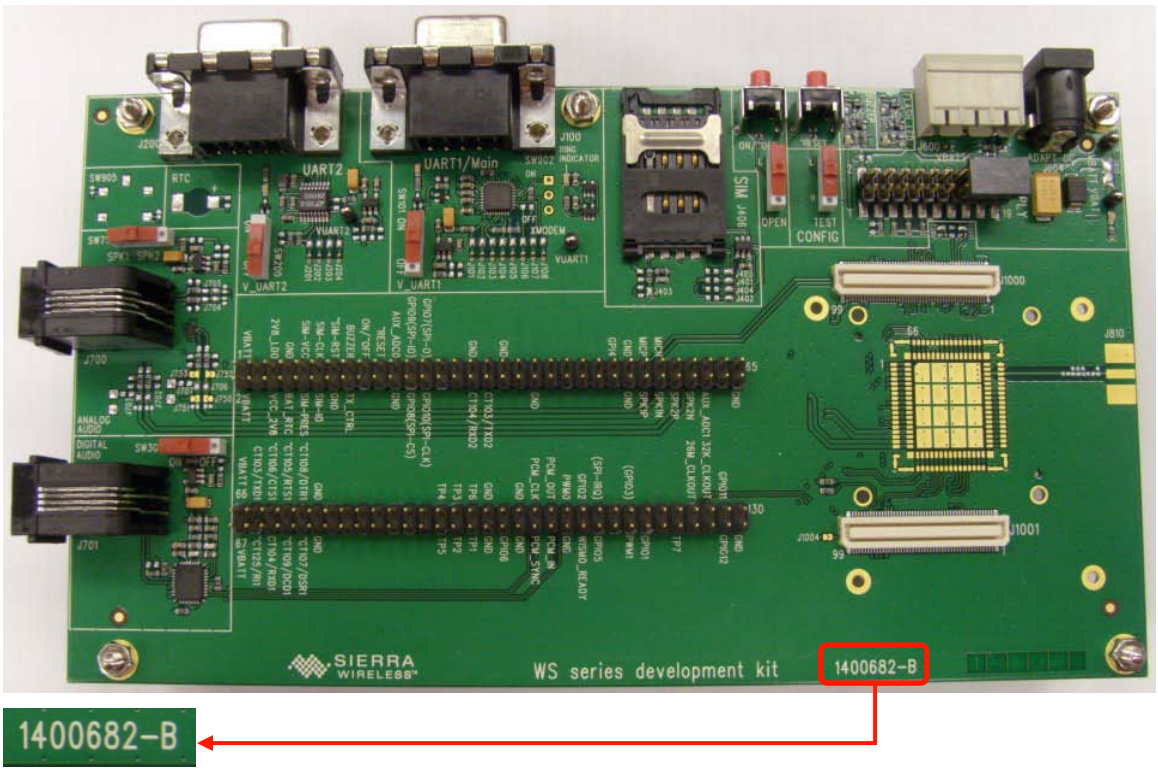


Figure 1. AirPrime WS Series Development Kit, Board Version 1400682-B (Top View)

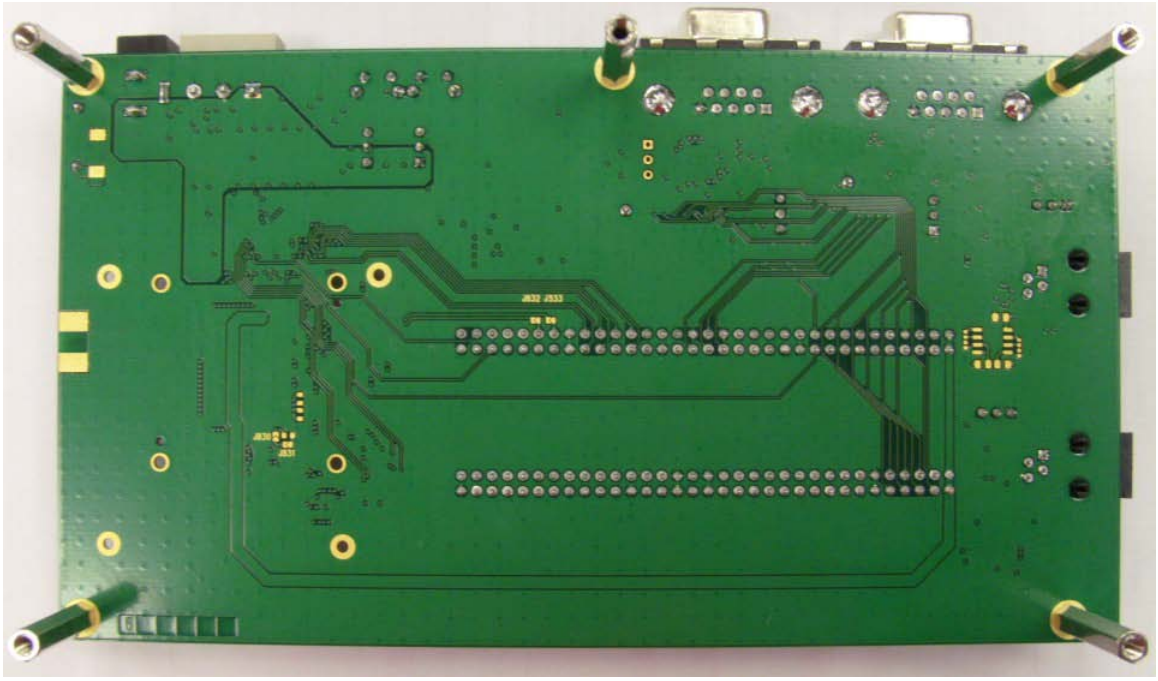


Figure 2. AirPrime WS Series Development Kit, Board Version 1400682-B (Bottom View)

2.2.1. Development Kit Component Placement Diagram

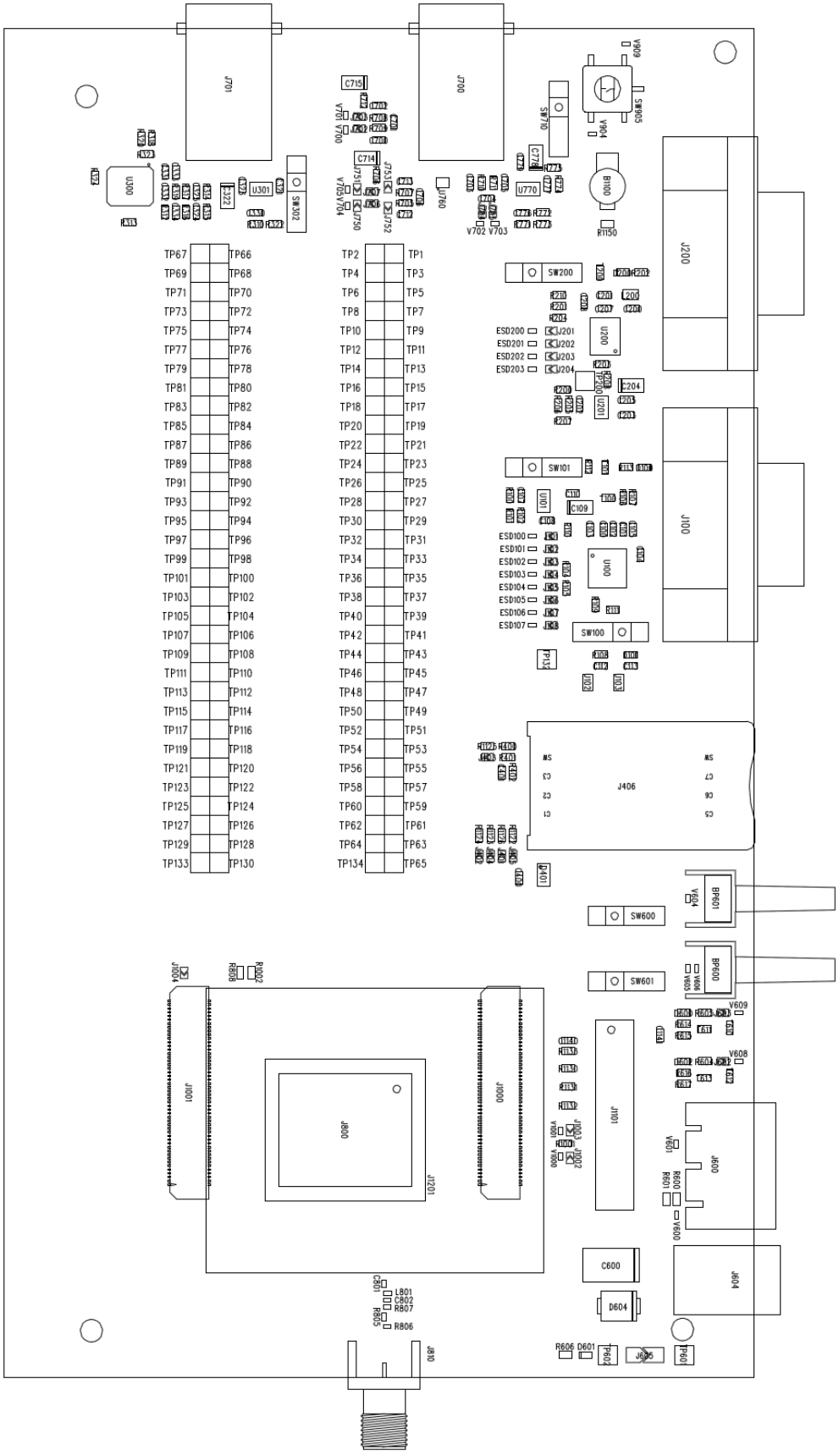


Figure 3. AirPrime WS Series Development Kit Board (Top View)

2.3. Socket Boards

The socket board is used to interface an AirPrime WS Series embedded module with the WS Series Development Kit. It provides a changeable interface for the WS series embedded modules using the same set of peripheral devices; and varies depending on which WS series embedded module is used.

The WS Series Development Kit currently supports two socket boards – the WISMO2x8 socket board, and the WS6318 socket board.

Refer to section 11 Appendix for schematic diagrams of the AirPrime WS Series Development Kit and the supported socket boards.

Figure 4. AirPrime WISMO2x8 Socket Board (Top View)

Figure 5. AirPrime WISMO2x8 Socket Board (Bottom View)

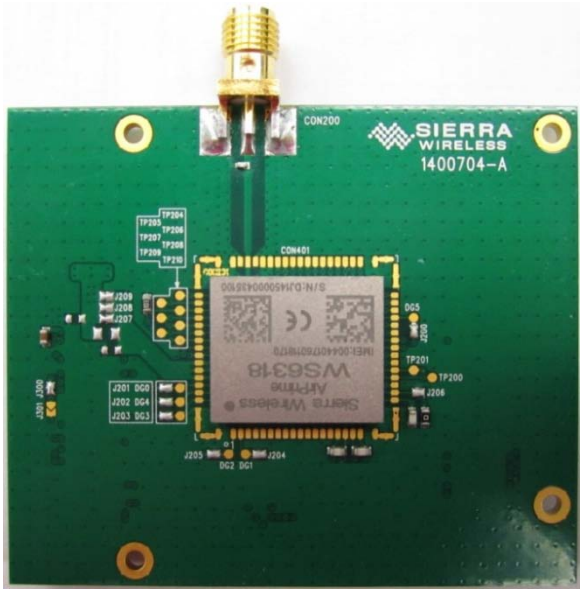


Figure 6. AirPrime WS6318 Socket Board (Top View)

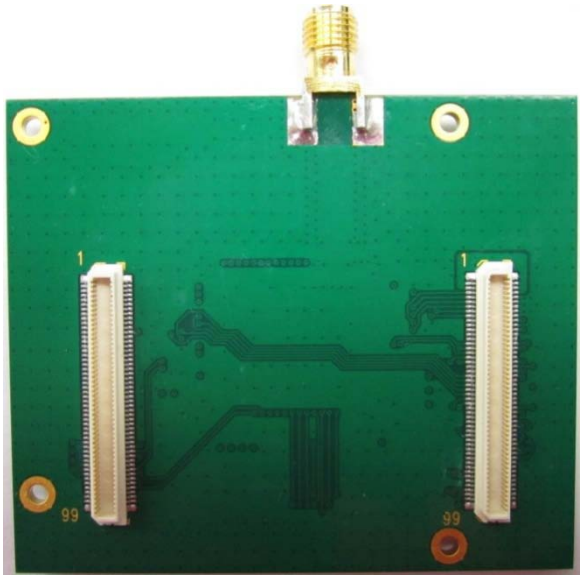


Figure 7. AirPrime WS6318 Socket Board (Bottom View)

2.3.1. Socket Board Component Placement Diagram

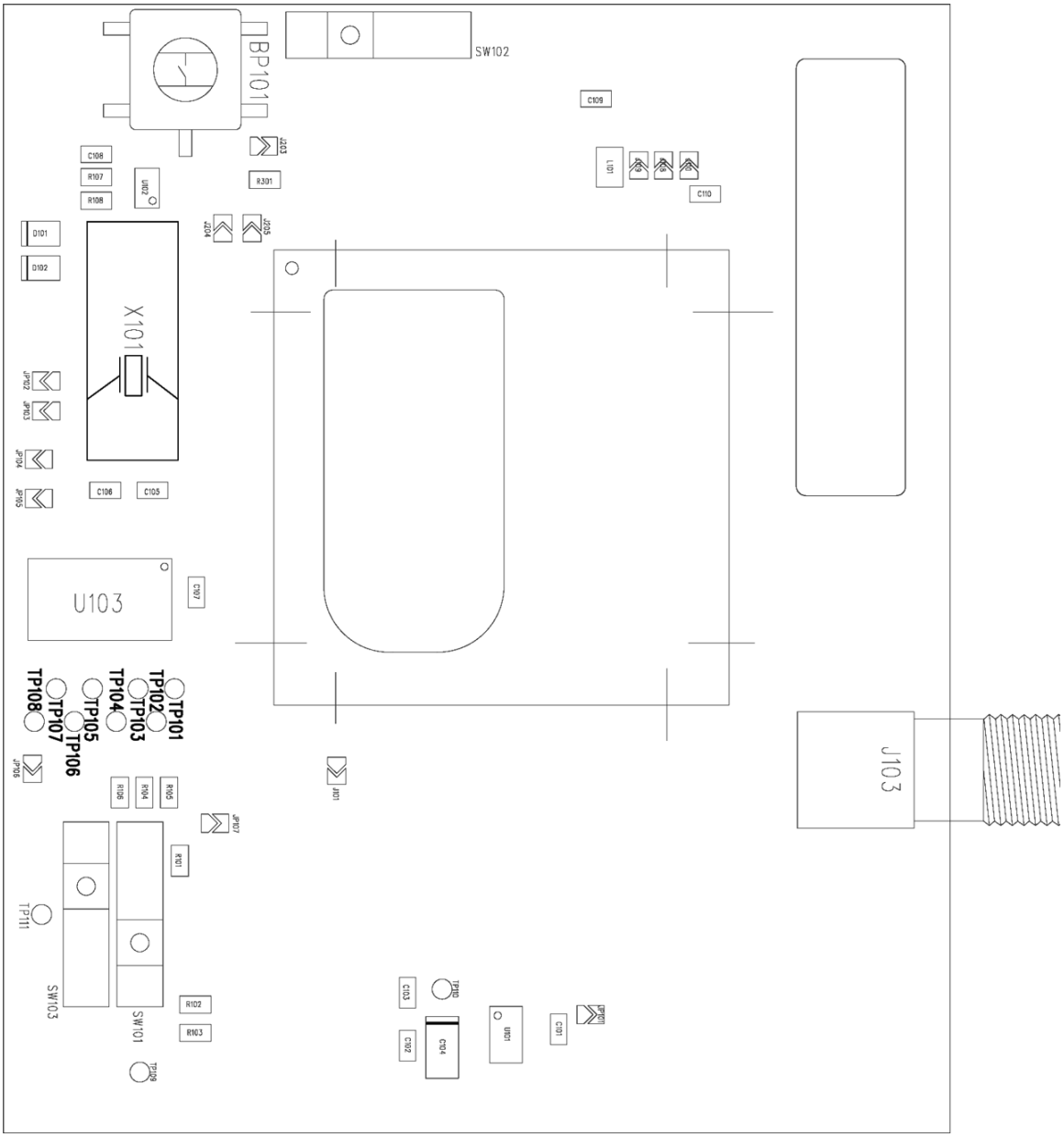


Figure 8. AirPrime WISMO2x8 Socket Board (Top View)

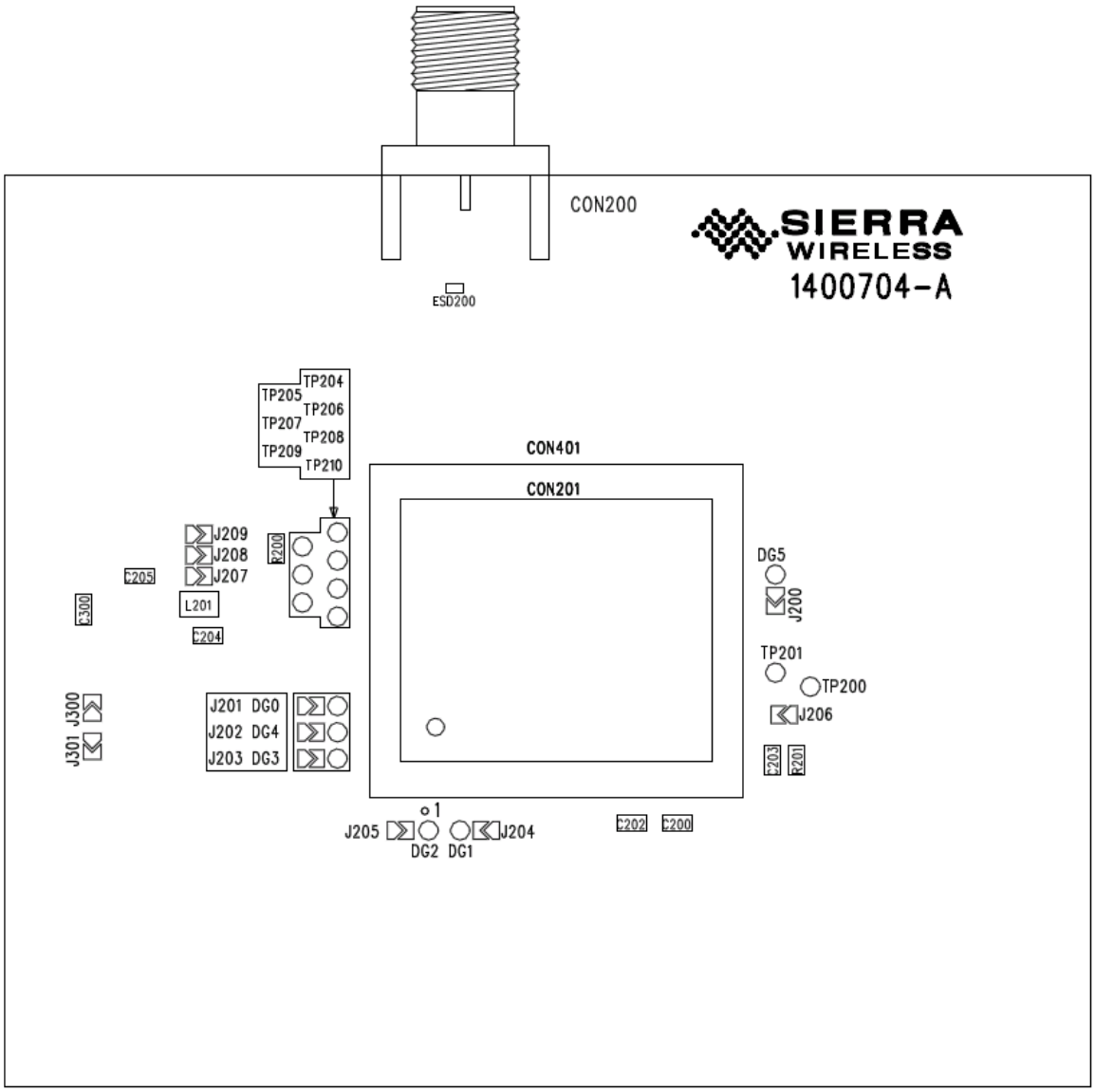


Figure 9. AirPrime WS6318 Socket Board (Top View)

2.4. Special Soldering for Jumper Pads

PCB jumper prints are used to electrically connect or disconnect peripherals between the AirPrime WS series embedded module and the AirPrime WS Series Development Kit.

Figure 10. Jumper Solder Pad

To connect signals between the AirPrime WS series embedded module (from J1000 and J1001) and the dedicated connectors on the AirPrime WS Series Development Kit or Socket Board, solder the PCB jumper prints specified in section 2.5 Default Soldering Configuration for Jumpers.

The interfaces (and signals) listed below could be electrically removed by dissociating the following PCB jumper prints:

- Power supply of the AirPrime WS Series Development Kit interfaces (All components from J605, except for the AirPrime WS Series embedded module. For more information, refer to section 8 Current Consumption Measurement.)
- SIM (from J401 to J405)
- UART1 (from J101 to J108)
- UART2 (from J201 to J204)
- Analog Audio (from J702 to J707)
- Flash LED signal (J602)
- BUZZER signal (J603)

2.5. Default Soldering Configuration for Jumpers

The following sub-sections display the default soldering configuration for jumpers on both the development kit board and on the supported socket boards.

2.5.1. Development Kit Board

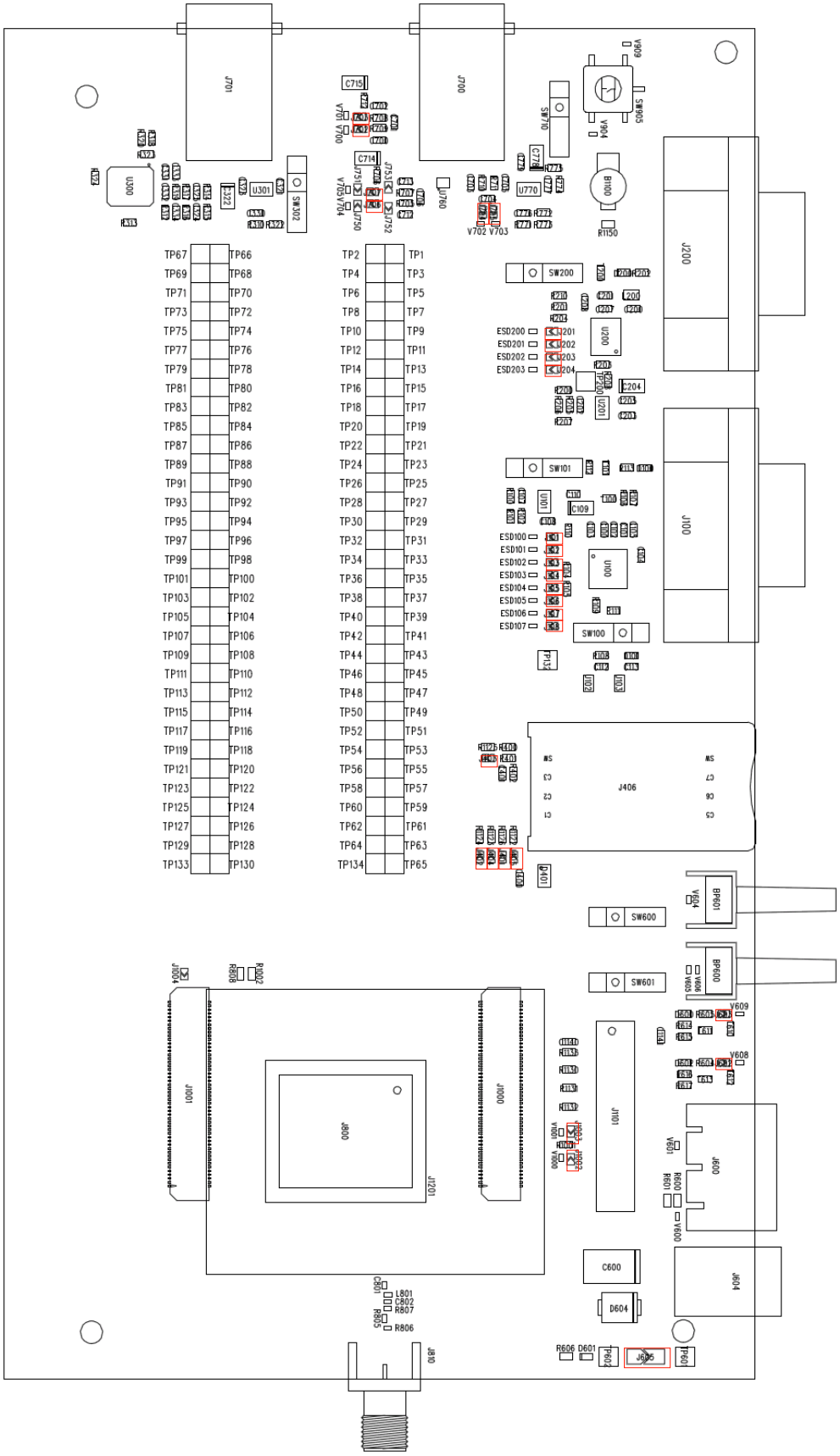


Figure 11. WS Series Development Kit Default Soldering Configuration for Jumpers, Board Version 1400682-B (Top View)

2.5.2. Socket Boards

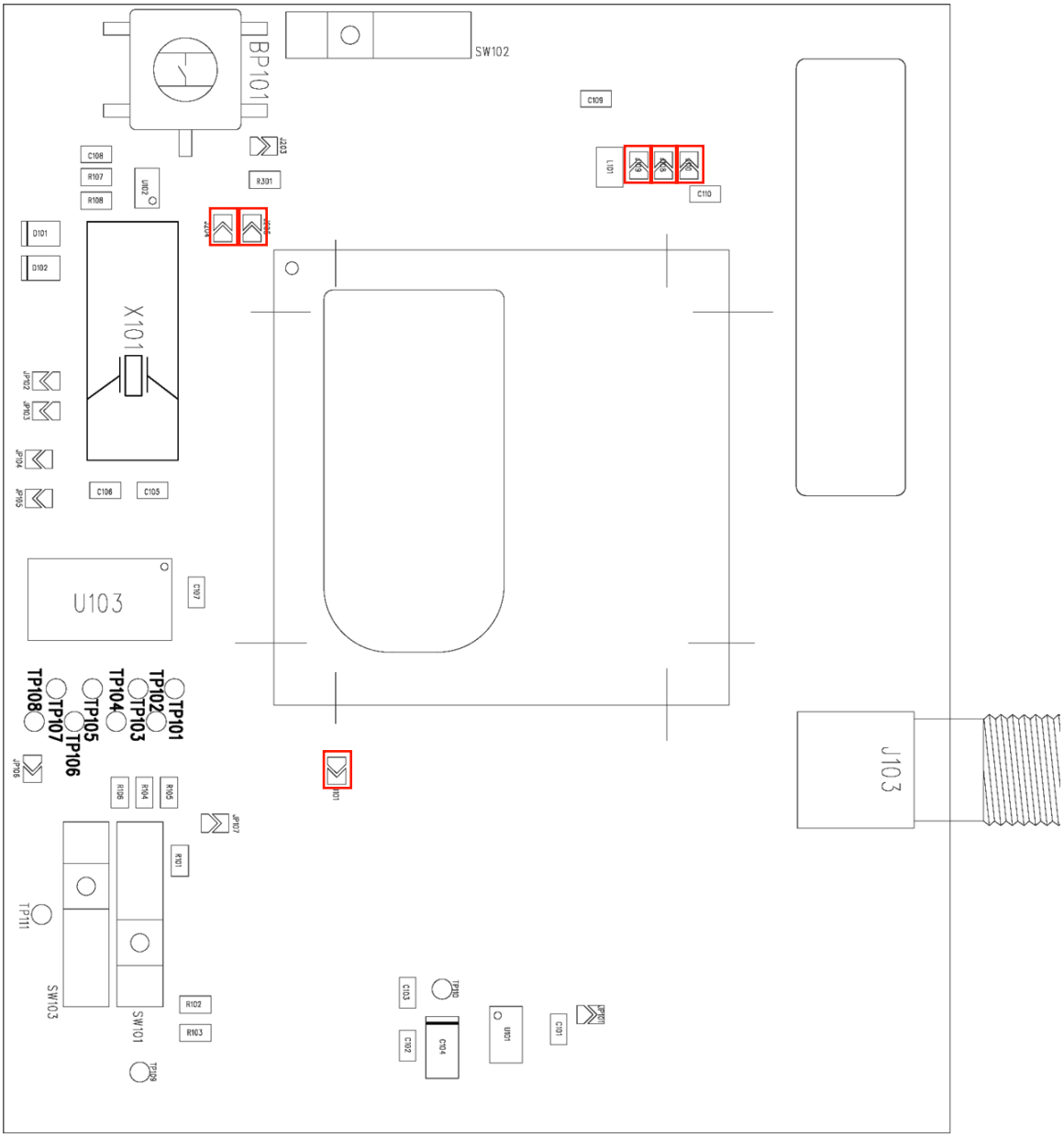


Figure 12. WISMO2x8 Socket Board Default Soldering Configuration for Jumpers (Top View)

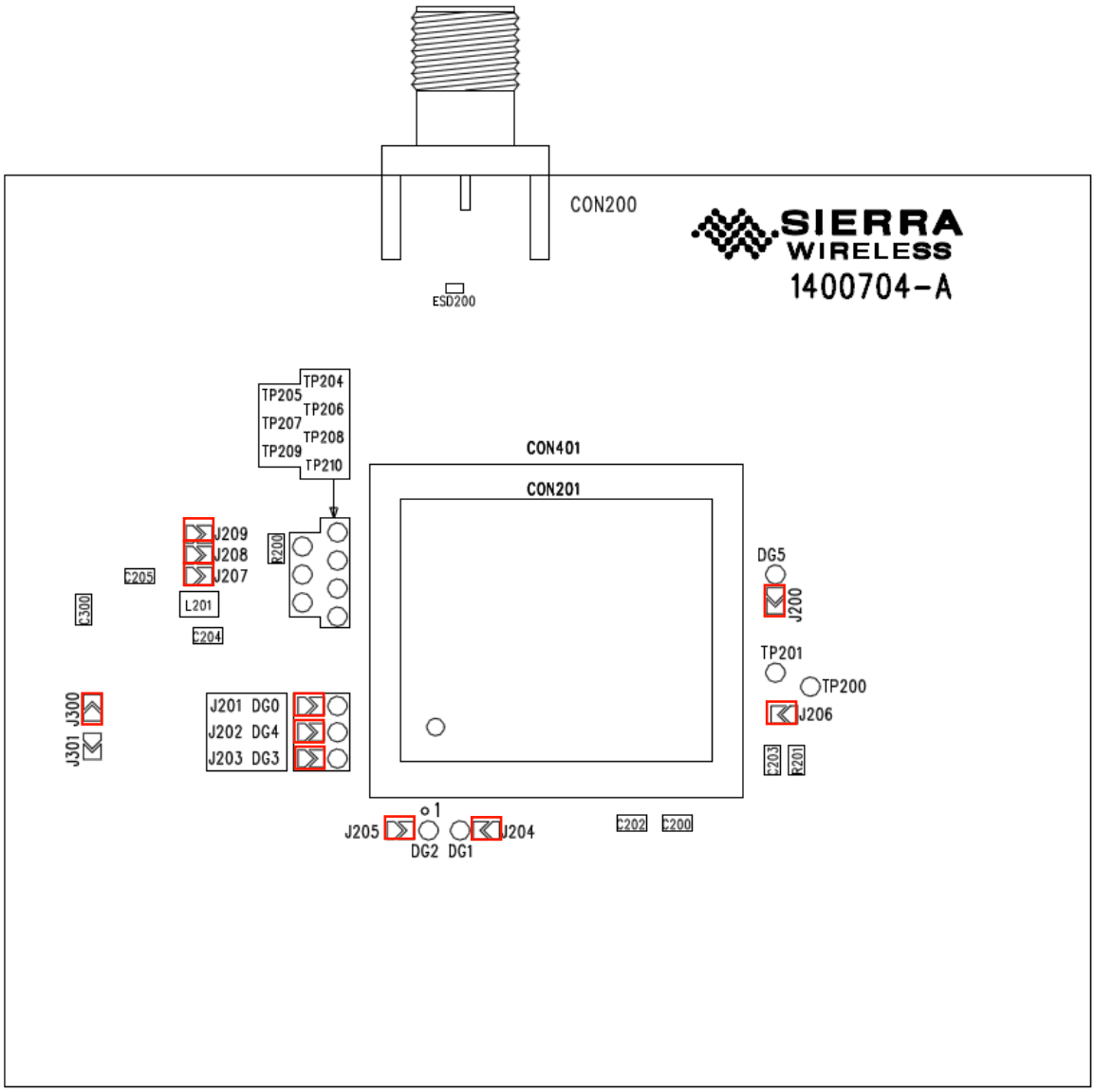


Figure 13. WS6318 Socket Board Default Soldering Configuration for Jumpers (Top View)

2.6. Available Test Ports on the AirPrime WS Series Development Kit

There are a total of 130 test ports available in the AirPrime WS Series Development Kit. The following figure shows the location of these test ports in the AirPrime WS Series Development Kit and the table below lists their corresponding pin assignments.

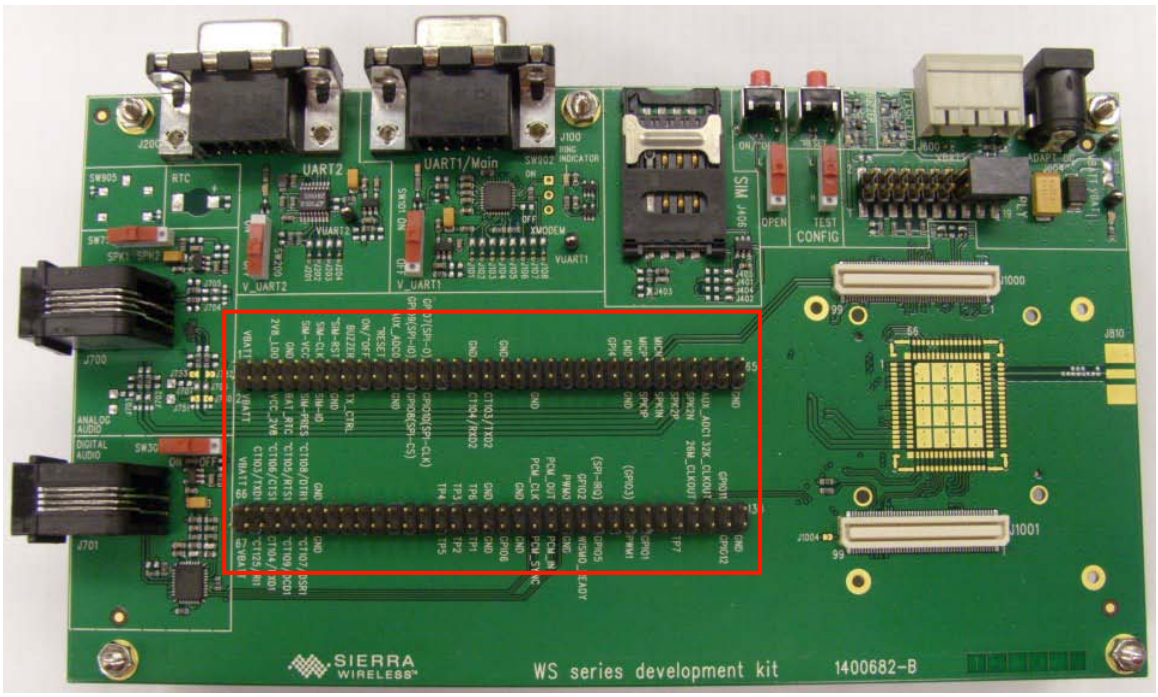


Figure 14. Test Ports Available on the AirPrime WS Series Development Kit

Table 1. AirPrime WS Series Development Kit Test Ports

Test Port	Development Kit Serigraphy	WISMO2x8 Embedded Module Pin	WS6318 Embedded Module Pin
1	VBATT	VBATT	VBATT
2	VBATT	VBATT	VBATT
3	-	N/A	N/A
4	-	N/A	N/A
5	2V8_LDO	N/A	2V8_LDO
6	VCC_2V8	VCC_2V8	VCC_2V8
7	GND	GND	GND
8	BAT_RTC	BAT-RTC	BAT-RTC
9	SIM-VCC	SIM-VCC	SIM-VCC
10	SIM-PRES	N/A	SIM-PRES
11	SIM-CLK	SIM-CLK	SIM-CLK
12	SIM-IO	SIM-IO	SIM-IO
13	~SIM-RST	~SIM-RST	~SIM-RST
14	GND	GND	GND
15	BUZZER	BUZZER	BUZZER
16	TX_CTRL	TX_CTRL	TX_CTRL
17	ON/~OFF	ON/~OFF	ON/~OFF

Test Port	Development Kit Serigraphy	WISMO2x8 Embedded Module Pin	WS6318 Embedded Module Pin
18	-	N/A	N/A
19	~RESET	~RESET	~RESET
20	-	N/A	N/A
21	AUX_ADC0	AUX_ADC0	AUX_ADC0
22	GND	GND	GND
23	GPIO9/(SPI-IO)	SPI-IO	GPIO9
24	GPIO8/(SPI-CS)	~SPI-CS	GPIO8
25	GPIO7/(SPI-O)	SPI-O	GPIO7
26	GPIO10/(SPI-CLK)	SPI-CLK	GPIO10
27	-	N/A	N/A
28	-	N/A	N/A
29	-	N/A	N/A
30	-	N/A	N/A
31	GND	GND	GND
32	CT104/RXD2	N/A	CT104/RXD2
33	-	N/A	N/A
34	CT103/TXD2	N/A	CT103/TXD2
35	GND	GND	GND
36	-	N/A	N/A
37	-	N/A	N/A
38	-	N/A	N/A
39	-	N/A	N/A
40	GND	GND	GND
41	-	N/A	N/A
42	-	N/A	N/A
43	-	N/A	N/A
44	-	N/A	N/A
45	-	N/A	N/A
46	-	N/A	N/A
47	-	N/A	N/A
48	-	N/A	N/A
49	GPI4	N/A	GPI4
50	-	N/A	N/A
51	GND	GND	GND
52	GND	GND	GND
53	MICP	MICP	MICP
54	SPK1P	N/A	SPK1P
55	MICN	MICN	MICN
56	SPK1N	N/A	SPK1N
57	-	N/A	N/A
58	SPK2P	SPKP	SPK2P
59	-	N/A	N/A
60	SPK2N	SPKN	SPK2N

Test Port	Development Kit Serigraphy	WISMO2x8 Embedded Module Pin	WS6318 Embedded Module Pin
61	-	N/A	N/A
62	AUX_ADC1	N/A	AUX_ADC1
63	-	N/A	N/A
64	-	N/A	N/A
65	-	N/A	N/A
66	VBATT	VBATT	VBATT
67	VBATT	VBATT	VBATT
68	CT103/TXD1	CT103/TXD	CT103/TXD1
69	~CT125/RI1	~CT125/RI	~CT125/RI1
70	~CT106/CTS1	~CT106/CTS	~CT106/CTS1
71	CT104/RXD1	CT104/RXD	CT104/RXD1
72	~CT105/RTS1	~CT105/RTS	~CT105/RTS1
73	~CT109/DCD1	~CT109/DCD	~CT109/DCD1
74	~CT108/DTR1	~CT108/DTR	~CT108/DTR1
75	~CT107/DSR1	~CT107/DSR	~CT107/DSR1
76	GND	GND	GND
77	GND	GND	GND
78	-	N/A	N/A
79	-	N/A	N/A
80	-	N/A	N/A
81	-	N/A	N/A
82	-	N/A	N/A
83	-	N/A	N/A
84	-	N/A	N/A
85	-	N/A	N/A
86	-	N/A	N/A
87	-	N/A	N/A
88	-	N/A	N/A
89	-	N/A	N/A
90	-	N/A	N/A
91	-	N/A	N/A
92	TP4	N/A	TP4
93	TP5	N/A	TP5
94	TP3	N/A	TP3
95	TP2	N/A	TP2
96	TP6	N/A	TP6
97	TP1	N/A	TP1
98	GND	GND	GND
99	GND	GND	GND
100	-	N/A	N/A
101	GPIO6	N/A	GPIO6
102	GND	GND	GND
103	GND	GND	GND

Test Port	Development Kit Serigraphy	WISMO2x8 Embedded Module Pin	WS6318 Embedded Module Pin
104	PCM_CLK	N/A	PCM_CLK
105	PCM_SYNC	N/A	PCM_SYNC
106	PCM_OUT	N/A	PCM_OUT
107	PCM_IN	N/A	PCM_IN
108	PWM0	PWM0	PWM0
109	GND	GND	GND
110	GPIO2	N/A	GPIO2
111	WISMO_READY	WISMO_READY	WISMO_READY
112	(SPI-IRQ)	SPI-IRQ	N/A
113	GPIO5	GPIO5	GPIO5
114	-	TX_CTRL	N/A
115	-	N/A	N/A
116	(GPIO3)	GPIO3	N/A
117	PWM1	PWM1	PWM1
118	-	N/A	N/A
119	GPIO1	GPIO1	GPIO1
120	-	N/A	N/A
121	-	N/A	N/A
122	-	N/A	N/A
123	TP7	N/A	TP7
124	26M_CLKOUT	N/A	26M_CLKOUT
125	-	N/A	N/A
126	32K_CLKOUT	N/A	32K_CLKOUT
127	-	N/A	N/A
128	GPIO11	N/A	GPIO11
129	GPIO12	N/A	GPIO12
130	GND	N/A	GND

3. Setting Up the AirPrime WS Series Development Kit

The following section describes how the AirPrime WS Series Development Kit and the Socket Board (with the AirPrime WS Series embedded module soldered-down) are setup. It also briefly describes how communication tests are done to ensure that the AirPrime WS Series Embedded Module has been properly connected to the AirPrime WS Series Development Kit.

3.1. Setting Up the AirPrime WS Series Development Kit

Prepare the AirPrime WS Series Development Kit (and the socket board) by following these instructions step by step.

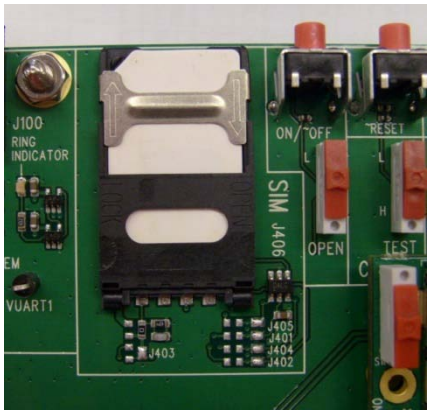
1. If using a WISMO2x8 socket board, ensure that switch SW102 on the socket board is set to the “OFF” position.

2. Plug the Socket Board onto the AirPrime WS Series Development Kit using board to board connectors J1000 and J1001.

WISMO2x8 Socket Board:

WS6318 Socket Board:

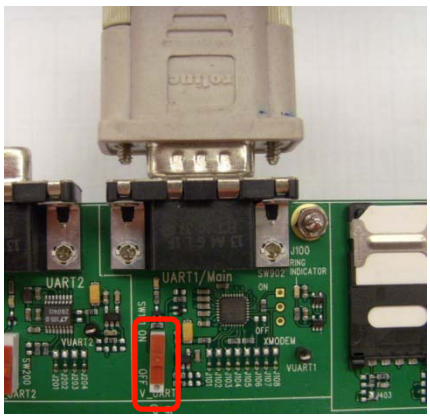
3. Insert a SIM card into the SIM card holder, J400 (if communications is required).



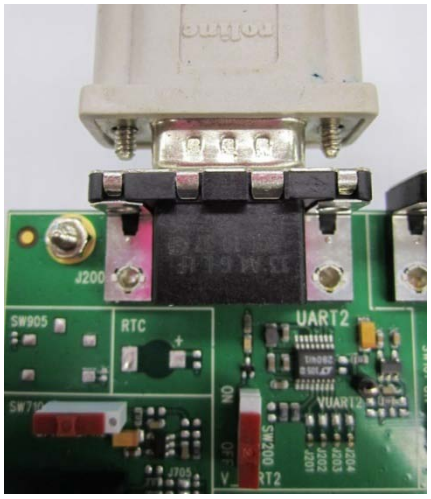
Note: *Note that all jumper pads are soldered by default. (Refer to section 2.5 Default Soldering Configuration for Jumpers for more information.) Retain these settings.*

4. Connect the RS232 cable between the PC port and J100 of the AirPrime WS Series Development Kit and make sure that SW101 is in the “ON” position.

Note: *By default, baud rate = 115200 kbps, data bits = 8, parity = none, and stop bits = 1.*

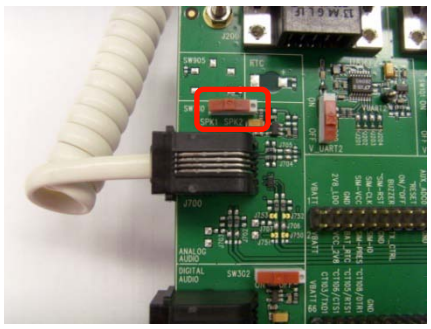


5. If using UART2 for debug purposes, connect an RS232 cable between the PC port and J200 of the AirPrime WS Series Development Kit.

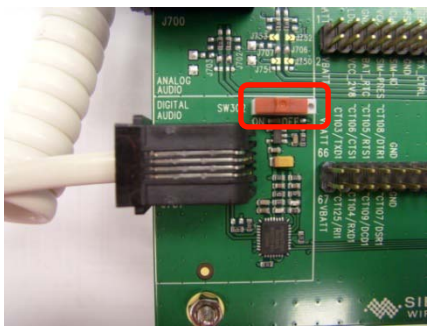


6. If RF communications is required, connect the SMA connector on the Socket Board to an external antenna or a Radio Communication Tester using a coaxial cable.

7. If analog audio communications is required, connect the handset to the analog audio connector, J700.
   - If using a WISMO2x8 socket board, ensure that switch SW710 is set to the “SPK2” position.
   - If using a WS6318 Socket Board, select SPK1 or SPK2 by switching SW710 to the correct speaker option.



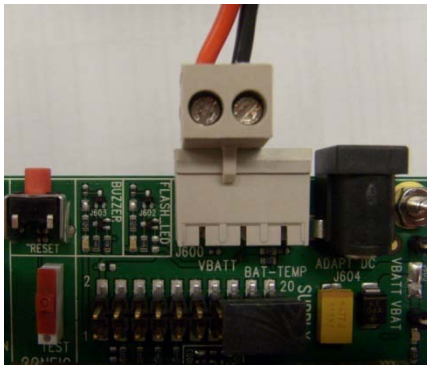
8. If digital audio is needed, connect the audio peripheral to the digital audio connector, J701, and make sure that SW302 is in the “ON” position.



Note: This interface is not available with the WISMO2x8 socket board.

9. Plug in the AC/DC power supply provided in the J604 connector; or connect it to an external DC power supply at 4V/2A (J600).

   The presence of a DC power supply is indicated by a green LED, D601. For more details about this LED, refer to section 4.1.3 LED Signalization for VBAT.

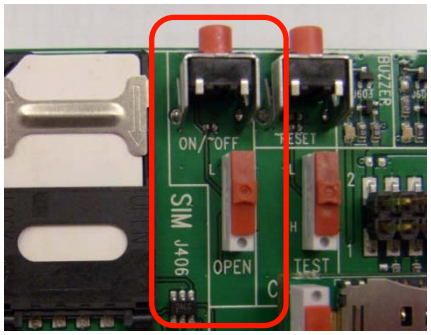


Note: The AirPrime WS Series Development Kit is automatically switched ON when power is supplied.

10. Switch the WS series embedded module ON.
    - If using a WISMO2x8 socket board:
      - Press BP101 on the WISMO2x8 socket board to switch the AirPrime WISMO2x8 embedded module ON.
    - If using a WS6318 Socket Board:
      - Make sure the ON/~OFF switch is in the “L” position to switch the AirPrime WS6318 embedded module ON.
      - Alternatively, you can push the ON/~OFF button when the ON/~OFF switch is in the “OPEN” position to switch the embedded module ON.

WISMO2x8 Socket Board:

WS6318 Socket Board:



The AirPrime WS Series Development Kit should look like the following figure after it has been properly setup.

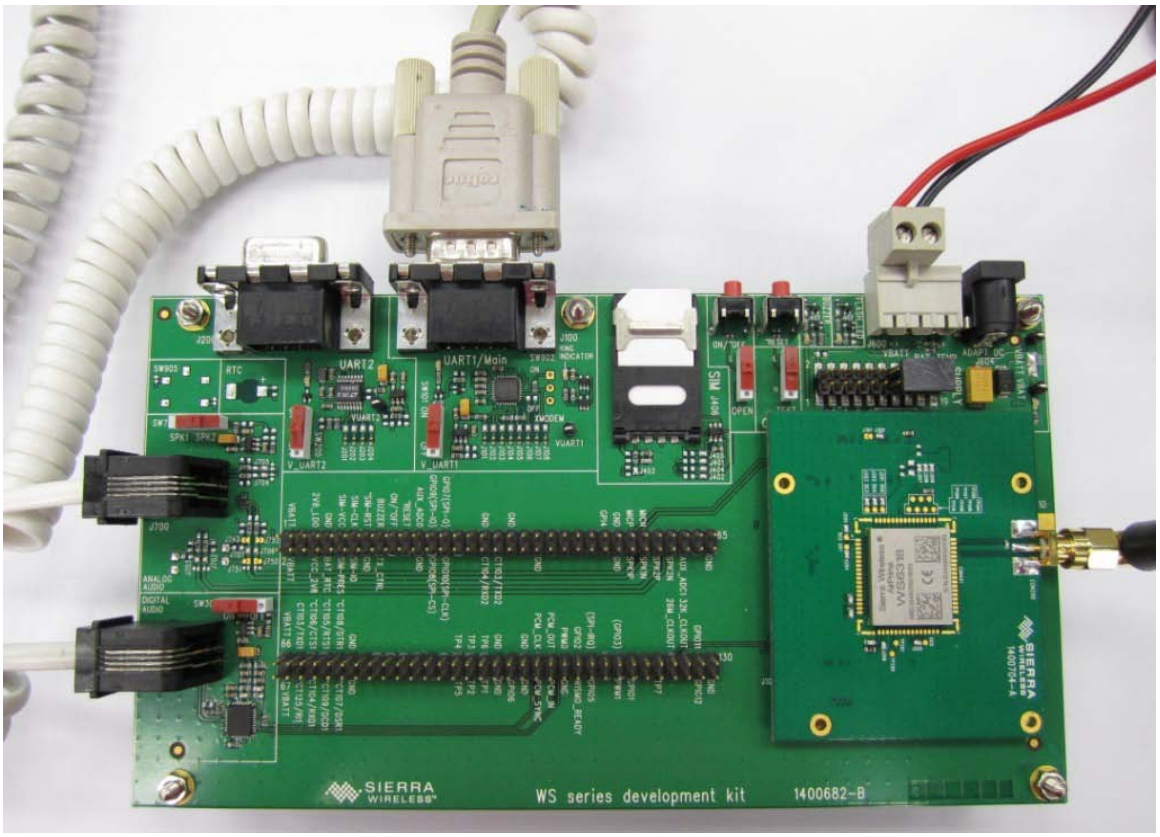


Figure 15. AirPrime WS Series Development Kit (with a WS6318 Socket Board and Embedded Module)

3.2. Communications Test

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

1. Using a PC terminal emulator, send the following command on a serial port to communicate with the AirPrime WS Series embedded module:

   AT↵

2. When communications is established between the PC and the AirPrime WS Series embedded module, the embedded module replies with an “OK”. Verify that the response is displayed in the terminal emulator window.
3. A communication call can be made from the embedded module by AT command, “**ATD12345;**” while the embedded module is connected to the CMU200. Conversely, “RING” will be indicated in the HyperTerminal window on the PC when a call is received by the embedded module; type “**ATA**” to accept the call. For more details about communication calls, please refer to documents [1] AirPrime WS6318 AT Command Manual for Firmware L30 and [4] AT Command Manual for AirPrime WS Series Firmware L23.

4. Interfaces/Peripherals on the Development Kit Board

This section describes the different interfaces/peripherals that are available on the AirPrime WS Series Development Kit.

4.1. Power Supplies

Two power supply sources are available on the AirPrime WS Series Development Kit:

- DC external supply (via J600)
- AC/DC adapter (via J604)

These power supplies are protected against electrostatic discharge (ESDs) and voltage or current transient surges by ESD diodes or varistors.

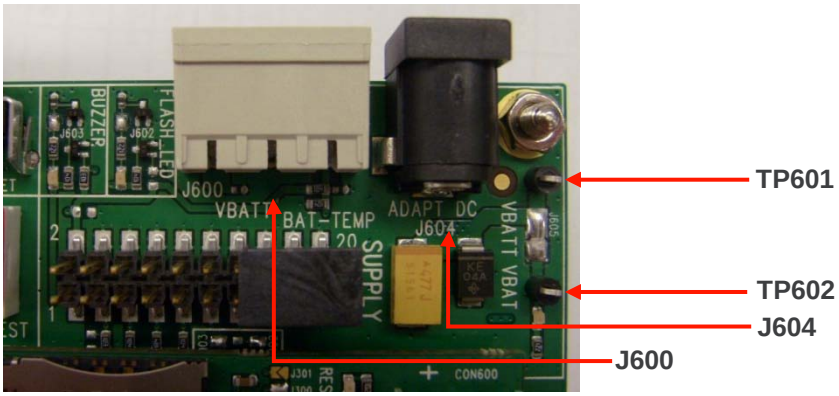


Figure 16. Power Supply Connectors (J604 and J600)

Either one these power supplies can be used for ***both*** the AirPrime WS Series embedded module and the peripherals on the AirPrime WS Series Development Kit.

Note that it is possible to separate the power supply for the Socket Board (“VBATT” via TP601) and the power supply for the peripherals on the development kit board (“VBAT” via TP602) by unsoldering J605. Current measurement is therefore possible for the AirPrime WS Series Development Kit and for the AirPrime WS Series embedded module. Refer to section 8 Current Consumption Measurement for more information.

Figure 17. VBATT Connection (J605)

4.1.1. Main Supply Adapter

The J604 connector powers the AirPrime WS Series Development Kit using an AC/DC power supply cable.

Figure 18. Main Supply Adapter

Details of the only supported adapter are listed in the following table.

Table 2. Supported Adapter

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

4.1.2. External Supply

The external supply is accessible through the J600 connector.

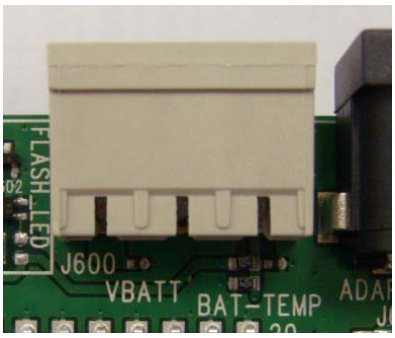


Figure 19. External Power Supply Connector

The J600 connector has three pins:

- **Pins 1-2** are used to plug the power supply.
- **Pins 2-3** are used to plug in AUX-ADC1. (Refer to section 4.1.2.1 AUX-ADC1 for more information.)

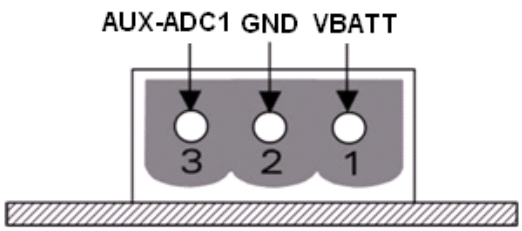


Figure 20. External Power Supply Pins

Refer to the following table for the electrical characteristics of VBATT.

Table 3. Electrical Characteristics of VBATT

	V_{MIN}	V_{NOM}	V_{MAX}
VBATT[1,2]	3.2V	3.6V	4.8V

1: This value has to be guaranteed during the burst (with 1.5A Peak for the WISMO2x8 embedded module, and 1.4A Peak for the WS6318 embedded module in GSM or GPRS mode).

2: Maximum operating Voltage Stationary Wave Ratio (VSWR) is 2:1 for the WISMO2x8 embedded module, and 1.5:1 for the WS6318 embedded module.

For more information, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

4.1.2.1. AUX-ADC1

The AUX-ADC1 signal is an input (ADC) to the AirPrime WS Series embedded module.

Pins 2-3 of J600 allow the simulation of the temperature level from a sensor inside the battery. Refer to the following table for the electrical characteristics of AUX-ADC1.

Table 4. Electrical Characteristics of AUX-ADC1

	V_{MIN}	V_{NOM}	V_{MAX}*
AUX-ADC1	0	-	1V
	0	-	3V

* AUX-ADC1 may be configured to support a V_{MAX} of either 1V or 3V.

For more information, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

4.1.3. LED Signalization for VBAT

The “VBAT” indicator is a green LED and it indicates the presence of a power supply at J600 or J604. Both the AirPrime WS Series embedded module and its peripherals are powered by this power source when J605 is soldered. If J605 is unsoldered, an extra external power supply should be connected to “VBAT” for the AirPrime WS Series Development Kit.

Tip: *It is recommended to always use both VBATT and VBAT simultaneously.*

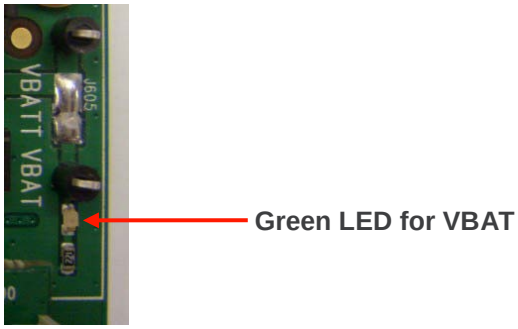


Figure 21. LED Signalization of VBAT

Refer to the following table for the VBATT and VBAT status depending on the LED state.

Note: VBATT is used as a power supply for the Socket Board, while VBAT is used as a power supply for the peripherals on the development kit board.

Table 5. Status of VBATT and VBAT

LED State	VBATT Status	VBAT Status
ON	ON	ON
OFF	ON when J605 is soldered; OFF when J605 is un-soldered	OFF

4.2. SIM

SIM is available on the AirPrime WS Series Development Kit on its dedicated connector, J406, with J401 to J405 soldered.

Note: ESD protection is available on all SIM signals.

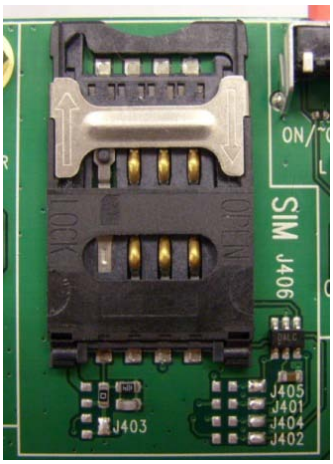


Figure 22. SIM Interface

4.2.1. SIM Connector (J406)

J406 is a standard 1V8 or 3V SIM socket.

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

Table 6. SIM Connector Pin Description

Pin Number	Signal Name	I/O	I/O Type	Description
1	SIM-VCC	O	1V8 or 2V9	SIM Power Supply
2	SIM-RST	O	1V8 or 2V9	SIM Reset
3	SIM-CLK	O	1V8 or 2V9	SIM Clock
4	SIMPRES	I	2V8 max*	SIM Card Detect
5	GND			Ground
6	VPP	Not used		
7	SIM-IO	I/O	1V8 or 2V9	SIM Data

Pin Number	Signal Name	I/O	I/O Type	Description
8	CC8		2V8	SIMPRES signal supply

* For either 1V8 or 3V SIM cards.

4.3. UART1

UART1 of the AirPrime WS Series Development Kit is connected to the RS232 serial link interface of the AirPrime WS Series embedded module. The voltage level of UART1 is 2.8V from the AirPrime WS Series Development Kit side.

By default, UART1 is available on its dedicator connector, J100, with J101 to J108 soldered.

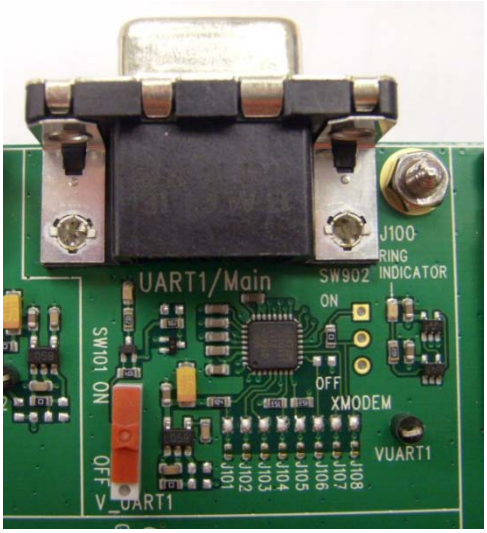


Figure 23. UART1 Interface

4.3.1. UART1 Connector (J100)

J100 is a SUB-D 9-pin female connector.

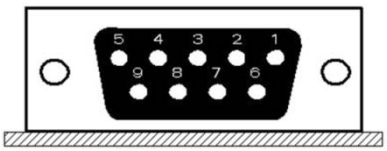


Figure 24. DB-9 Female Connector for UART1

Refer to the following table for the UART1 connector signal pin description.

Table 7. UART1 Connector Pin Description

Pin Number	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

Pin Number	Signal Name	I/O	I/O Type	Description
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

4.3.2. UART1 Configuration

The AirPrime WS 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.

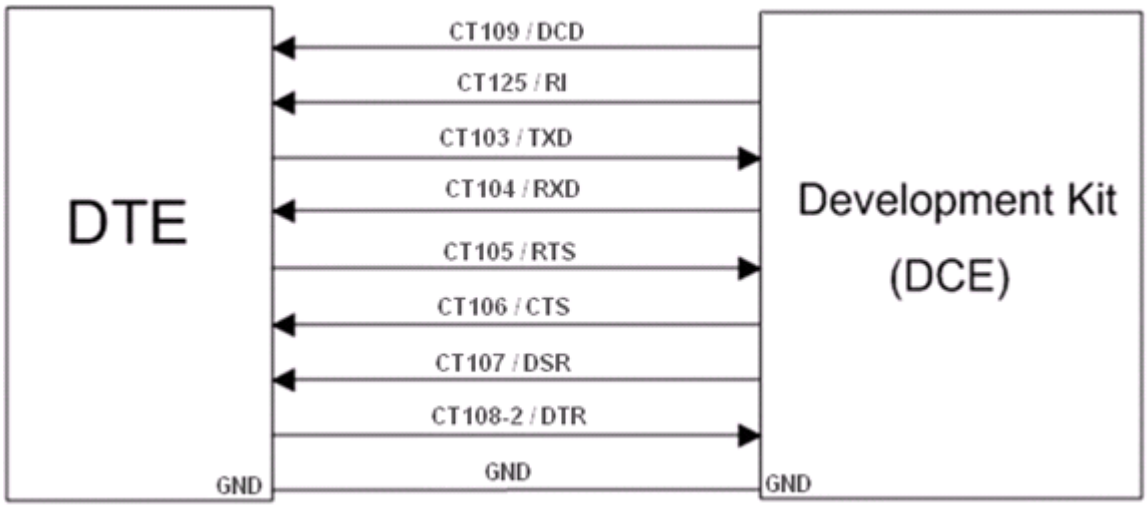


Figure 25. RS232 Main Serial Link

4.3.3. UART1 Enabling and Signalization

The UART1 interface can be enabled by switching SW101 to the “ON” position; and its state is indicated by two LEDs, D100 and D101.

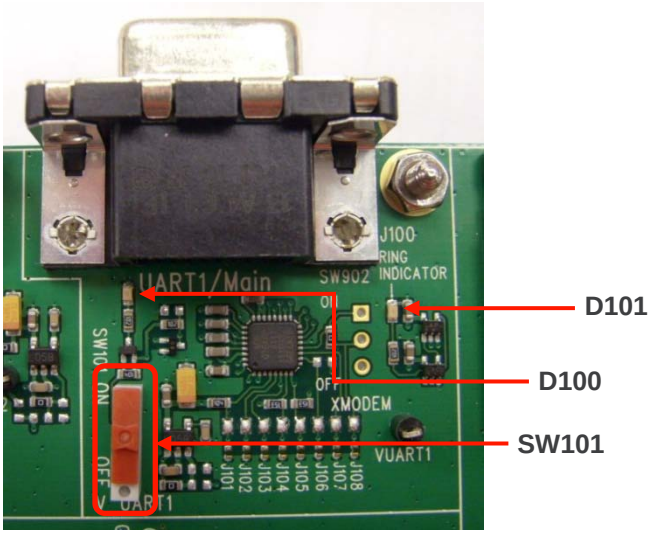


Figure 26. UART1 Switch Configuration and LED Location

4.3.3.1. UART1 LED (D100)

This green LED indicates the power supply state of UART1.

The interface can be used when it is lit depending on which power supply is present (J600 or J604). Refer to section 4.1 Power Supplies for more information.

4.3.3.2. RING INDICATOR LED (D101)

The “RING INDICATOR” is an orange LED controlled by the RI signal on the AirPrime WS Series embedded module.

When the AirPrime WS Series embedded module receives an incoming call, the RI signal goes from high to low for 0.5sec alternately; hence making the LED, D101, blink.

4.4. UART2

The UART2 interface available on the AirPrime WS Series Development Kit is used for debug purposes only.

When used with a WISMO2x8 socket board, the UART2 interfaces with the SPI interface of the AirPrime WISMO2x8 embedded module and performs SPI-to-serial conversion on data characters; and uses four signals.

When used with a WS6318 socket board, the UART2 connects to the auxiliary RS232 serial link interface of the AirPrime WS6318 embedded module at voltage level 2.8V; and uses only two signals.

By default, UART2 is available on its dedicator connector, J200, with J201 to J204 soldered.

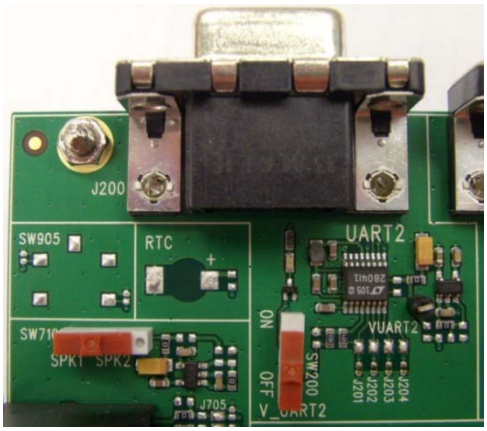


Figure 27. UART2 Interface

4.4.1. UART2 Connector (J200)

J200 is a SUB-D 9-pin female connector.

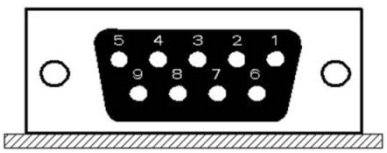


Figure 28. DB-9 Female Connector for UART2

Refer to the following table for the UART2 connector signal pin description.

Table 8. UART2 Connector (on the Development Kit Board) Pin Description

Pin Number	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	-	-	-

* This signal is not used with a WS6318 socket board.

4.4.2. UART2 Configuration for WISMO2x8

The AirPrime WS Series Development Kit acts as a DCE and is connected to a DTE (PC or terminal) with a “straight cable”. Only 4 signals on the UART2 are used as shown in the figure below.

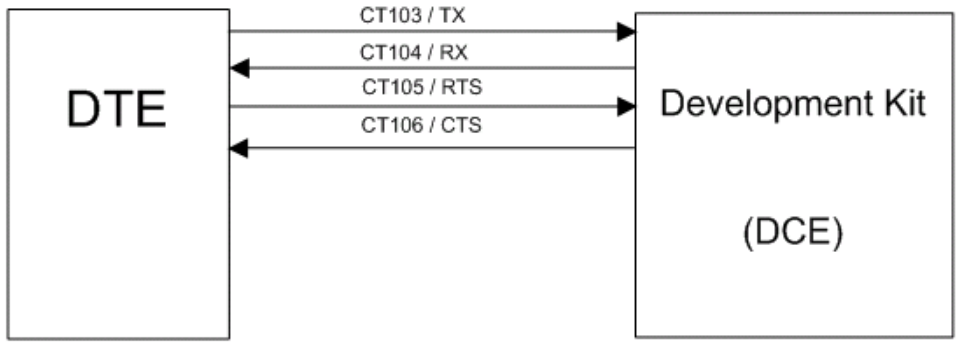


Figure 29. RS232 Auxiliary Serial Link (4-wire Configuration) with a WISMO2x8 Socket Board

4.4.3. UART2 Configuration for WS6318

The AirPrime WS Series Development Kit acts as a DCE and is connected to a DTE (PC or terminal) with a “straight cable”. Only 2 signals on the UART2 are used as shown in the figure below.

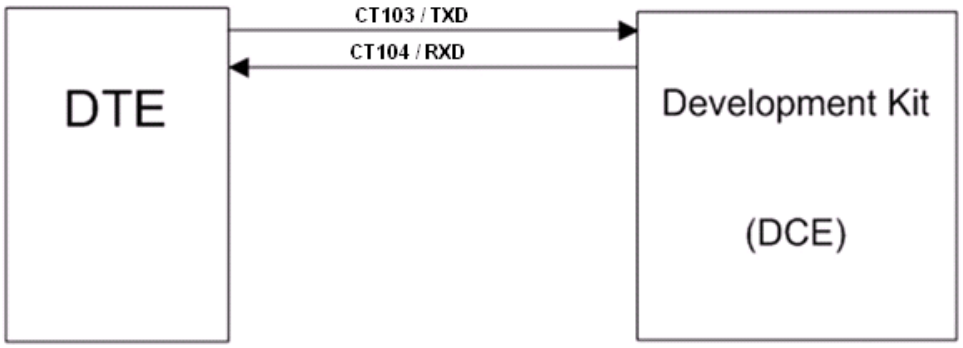


Figure 30. RS232 Auxiliary Serial Link (2-wire Configuration) with a WS6318 Socket Board

4.4.4. UART2 Enabling and Signalization

The UART2 interface can be enabled by switching SW200 to the “ON” position; and its state is indicated by an LED, D200. When this LED is lit, it indicates that the UART2 interface is available for use.

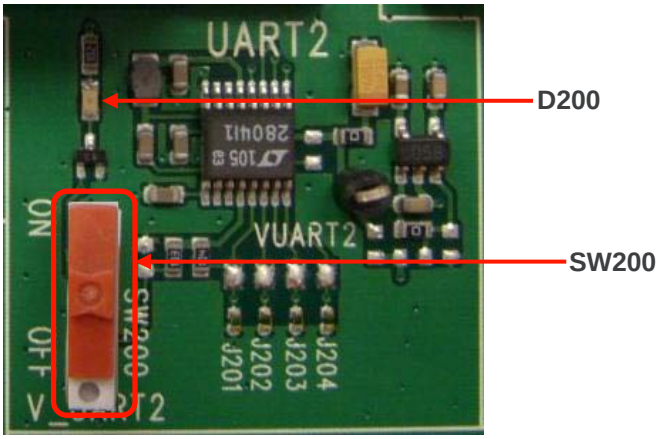


Figure 31. UART2 Switch Configuration and LED Location

4.5. Analog Audio

The analog audio interface on the AirPrime WS Series Development Kit allows connectivity with analog audio devices. For more information about the analog audio interface, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

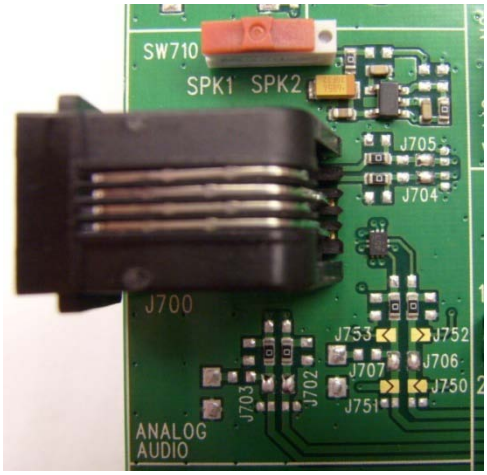


Figure 32. Analog Audio Interface

4.5.1. Analog Audio Connector (J700)

The audio connector could be disconnected from the AirPrime WS Series embedded module when soldering pads J702 to J707 are dissociated.

By default, audio signals of the AirPrime WS Series embedded module are available on its dedicated connector J700 (Analog Audio) when J702 to J707 are soldered.

J700 is an RJ9 4-pin connector.

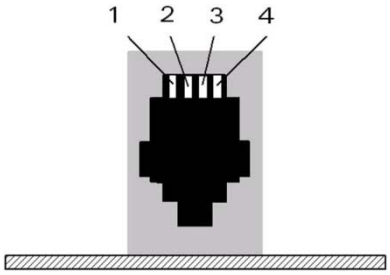


Figure 33. RJ9 4-pin Connector for Analog Audio

Refer to the following table for the analog audio connector signal pin description.

Table 9. Analog Audio Connector Pin Description

Pin Number	Signal Name	I/O	I/O Type	Description
1	MICN	I	Analog	Microphone negative input
2	SPKxN	O	Analog	Speaker negative output
3	SPKxP	O	Analog	Speaker positive output
4	MICP	I	Analog	Microphone positive input

4.5.2. Selecting a Speaker Channel

Although there are two speaker channels available on the WS6318 embedded module, only one analog audio connector in available on the WS Series Development Kit board. Select a speaker channel to use by switching SW710 between SPK1 and SPK2.

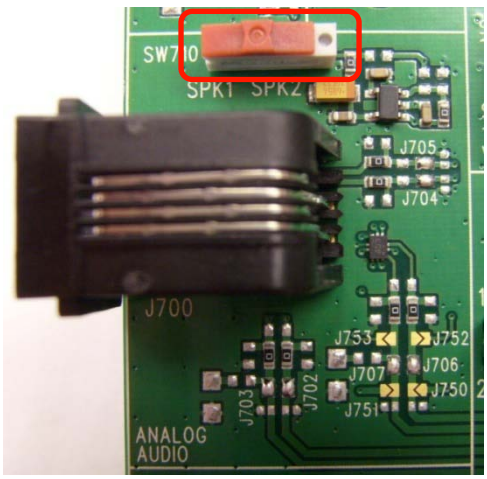


Figure 34. Selecting a Speaker Channel

When using a WISMO2x8 socket board, this switch should always be in the “SPK2” position.

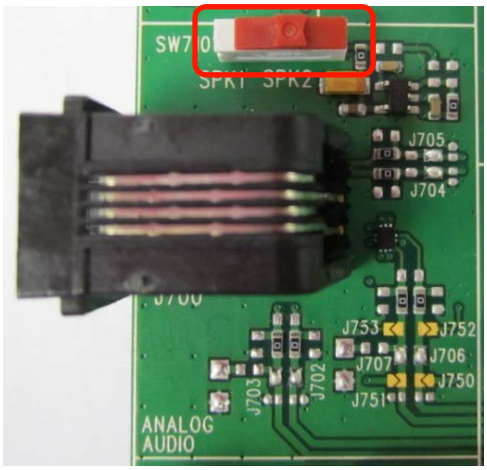


Figure 35. SW710 Configuration with a WISMO2x8 Socket Board

4.5.3. Analog Audio Connection Mode

Both microphone (MIC) and speaker signals (SPKx) of the AirPrime WS Series embedded module can be configured in either single-ended or differential mode. By default, both microphone and speaker signals are set to differential mode on the AirPrime WS Series Development Kit. The following diagrams show how the AirPrime WS Series Development Kit should be configured for a differential microphone and speaker.

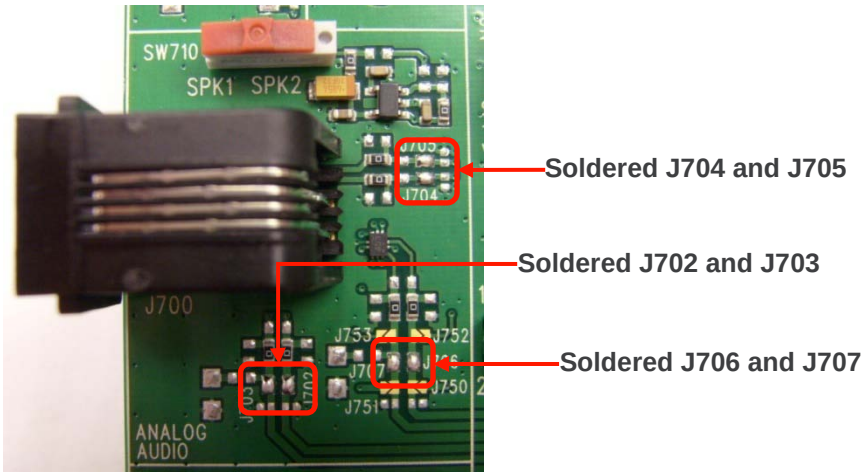


Figure 36. Settings for a Differential Microphone

For a single-ended microphone connection, the settings on the AirPrime WS Series Development Kit Board should be modified as follows.

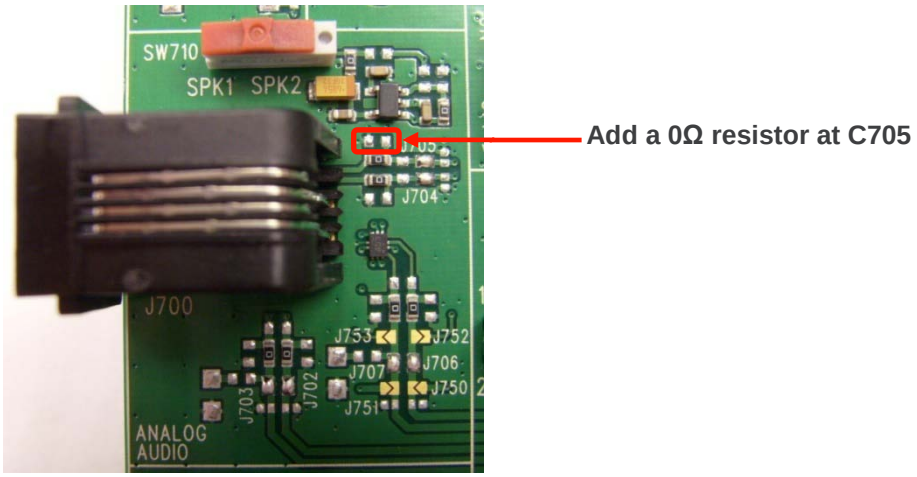


Figure 37. Settings for a Single-Ended Microphone

For a single-ended speaker connection, the settings on the AirPrime WS Series Development Kit Board should be modified as follows.

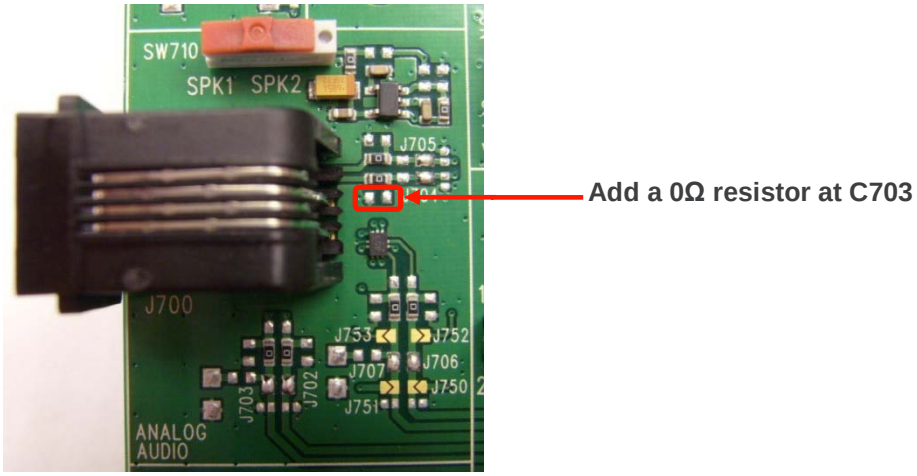


Figure 38. Settings for a Single-Ended Speaker

For more information about differential and single-ended audio configurations, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

4.6. Digital Audio Interface (PCM)

Note: This interface is only available for use with the WS6318 Socket Board.

The digital audio interface (PCM) allows connectivity with standard audio peripherals. For more information about the digital audio interface, refer to document [3] AirPrime WS6318 Product Technical Specification and Customer Design Guidelines.

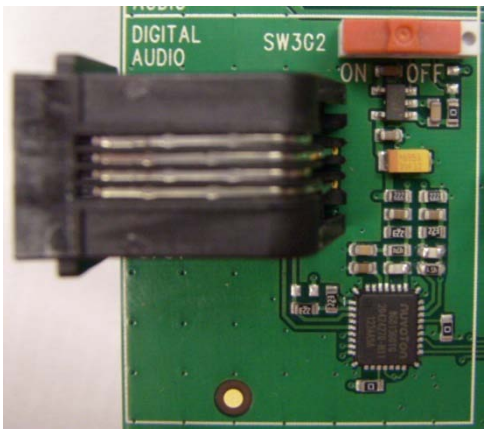


Figure 39. Digital Audio Interface (PCM)

4.6.1. Digital Audio Connector (J701)

J701 is an RJ9 4-pin connector.

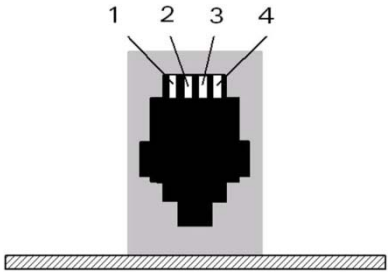


Figure 40. RJ9 4-pin Connector for Digital Audio

Refer to the following table for the digital audio (PCM) connector signal pin description.

Table 10. Digital Audio (PCM) Connector Pin Description

Pin Number	Signal Name	I/O	I/O Type	Description
1	Digital MICN	I	Analog	Digital microphone negative input
2	Digital SPKxN	O	Analog	Digital speaker negative output
3	Digital SPKxP	O	Analog	Digital speaker positive output
4	Digital MICP	I	Analog	Digital microphone positive input

4.6.2. Enabling the Digital Audio (PCM) Function (SW302)

The digital audio (PCM) interface can be enabled by switching SW302 to the “ON” position.

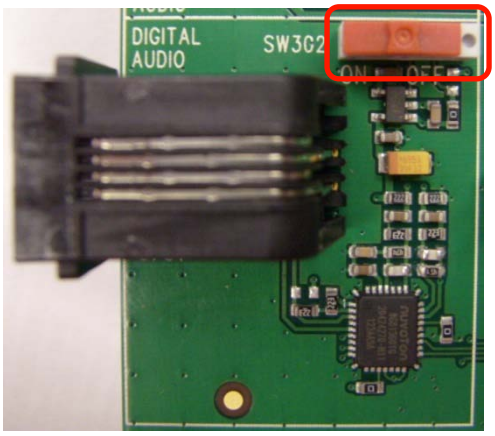


Figure 41. Digital Audio (PCM) Switch Configuration

4.7. Flash_LED (LED, D602)

The LED location is shown in the following figure.

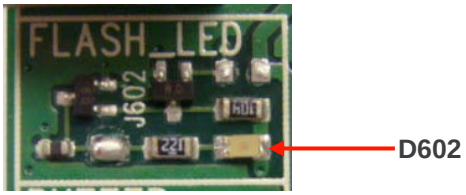


Figure 42. Flash_LED Location

The LED indicator, D602, is a green LED that indicates the network status.

For more information, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

4.8. Buzzer LED (BUZZER, D600)

The BUZZER location is shown in the figure below.

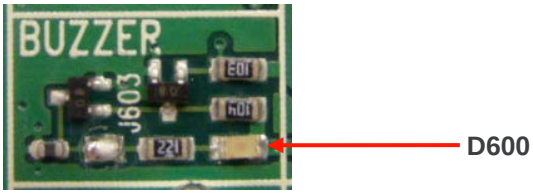


Figure 43. BUZZER Location

The BUZZER indicator, D600, is a green LED that is controlled by the BUZZER signal of the AirPrime WS Series embedded module.

For more information, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

4.9. JTAG

The JTAG interface is used for hardware debugging and product troubleshooting.

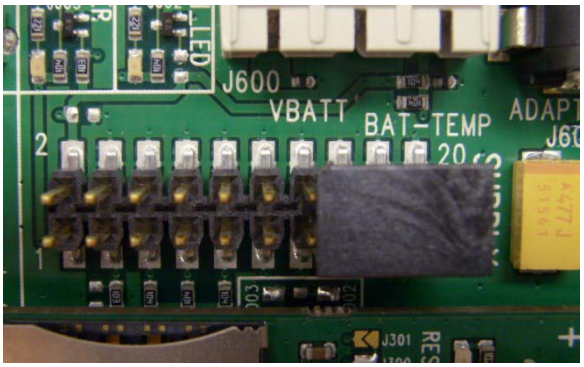


Figure 44. JTAG Connector

4.9.1. JTAG Connector

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

Table 11. JTAG Connector Pin Description

Pin Number	Signal Name	I/O	I/O Type	Description
1	VCC_2V8	O	2V8	2.8V Digital Supply
2	VCC_2V8	O	2V8	2.8V Digital Supply
3	TP5	I	2V8	Test Point 5
4	GND	-	-	GROUND
5	TP4	I	2V8	Test Point 4
6	GND	-	-	GROUND
7	TP3	I	2V8	Test Point 3
8	GND	-	-	GROUND
9	TP1	I	2V8	Test Point 1
10	GND	-	-	GROUND
11	TP6	O	2V8	Test Point 6
12	GND	-	-	GROUND
13	TP2	O	2V8	Test Point 2
14	GND	-	-	GROUND
15	~RESET	I/O	Pull-up inside the module	Reset Input
16	GND	-	-	GROUND
17	GND	-	-	GROUND
18	GND	-	-	GROUND
19	GND	-	-	GROUND
20	GND	-	-	GROUND

4.10. Other Interfaces

Other interfaces and signals available on the AirPrime WS Series Development Kit Board are available on the test points at the center of the development kit board. The following sub-sections describe these additional interfaces and signals.

Refer to section 2.6 Available Test Ports on the AirPrime WS Series Development Kit for the test point location and the pin description.

For further technical information, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

4.10.1. Power Supply Function

These outputs (2V8_LDO and VCC_2V8) from the AirPrime WS Series embedded module can be used to connect pull-up resistors. Both power outputs are 2.8V types. Note that these power supplies must only be used as a reference supply.

4.10.2. Backup Battery Function

The AirPrime WS Series embedded module provides an input/output signal, BAT-RTC, for connecting a Real Time Clock power supply. This pin is used as a backup power supply to preserve the date and time when VBATT is switched OFF (no VBATT).

4.10.3. ADC Function

The AirPrime WS6318 embedded module provides two analog to digital converters, AUX-ADC0 and AUX-ADC1; while the WISMO2x8 embedded module only provides AUX-ADC0. These converters are 10-bit resolution ADCs ranging from 0V to 1V (AUX-ADC0) and 0v to 3V (AUX-ADC1).

For more information about this interface, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

4.10.3.1. AUX-ADC0

This analog input signal can be used to monitor external (application) temperature.

4.10.3.2. AUX-ADC1

This input may be used for customer specific applications.

5. Interfaces/Peripherals on the Socket Board

This section describes the different interfaces/peripherals that are available on the Socket Board.

5.1. Antenna Function

An SMA connector used for customer applications is available on the socket board.

Figure 45. SMA Connector on the WISMO2x8 Socket Board

Figure 46. SMA Connector on the WS6318 Socket Board

6. Control Functions

This section describes the control functions available in the AirPrime WS Series Development Kit.

6.1. ON/~OFF

The AirPrime WS Series Development Kit board is always turned ON when power is supplied via J600 (DC external supply) or J604 (AC/DC adapter). Interfaces and peripherals on the development kit are individually switched ON when their corresponding switches are in the “ON” position.

6.1.1. WISMO2x8 Socket Board

To switch the embedded module soldered to a WISMO2x8 socket board ON, press BP101 on the WISMO2x8 socket board.

Figure 47. AirPrime WISMO2x8 Embedded Module ON/~OFF Switch on the WISMO2x8 Socket Board

For more information about the ON/~OFF signal of the embedded module, refer to documents [1] AirPrime WISMO218 Product Technical Specification and Customer Design Guideline and [2] AirPrime WISMO228 Product Technical Specification and Customer Design Guideline.

6.1.2. WS6318 Socket Board

To switch the embedded module soldered to a WS6318 socket board ON, make sure the ON/~OFF switch is in the “L” position.

Alternatively, you can push the ON/~OFF button when the ON/~OFF switch is in the “OPEN” position to switch the embedded module ON.

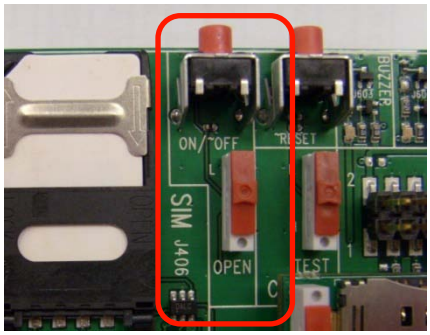


Figure 48. AirPrime WS6318 Embedded Module ON/~OFF Switch on the Development Kit Board

For more information about the ON/~OFF signal of the embedded module, refer to document [3] AirPrime WS6318 Product Technical Specification and Customer Design Guidelines.

6.2. ~RESET

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

Caution: *A software reset is preferred to a hardware reset.*

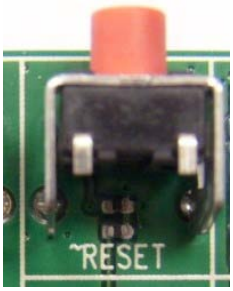


Figure 49. ~RESET Button

For more information about this signal, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

7. ESD Protections

External ESD protections are available on the AirPrime WS Series Development Kit for the following signals:

- SIM interface signals:
  - SIM-VCC
  - SIM-IO
  - SIM-CLK
  - SIM-RST
- Analog Audio

Other interface signals protected on the AirPrime WS Series embedded module are as follows:

- UART1 signals with the ADM3307 transceiver
- UART2 signals with the LTC2804 transceiver

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

8. Current Consumption Measurement

To measure the current consumption of the AirPrime WS Series embedded module, configure the AirPrime WS Series Development Kit as shown below.

Caution: *Before making any of these adjustments, ensure that the AirPrime WS Series Development Kit is disconnected from the power supply.*

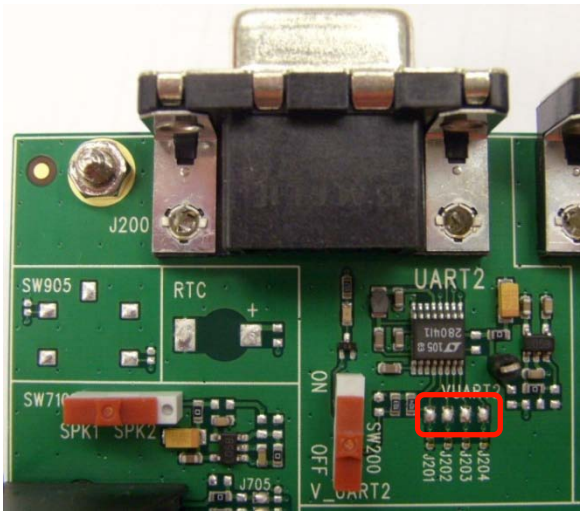
Note that with the configuration described below, the current consumption from VBATT is only that of the AirPrime WS Series embedded module soldered-down. For more information about the AirPrime WS Series embedded module and its current consumption, refer to the Product Technical Specification and Customer Design Guideline of the corresponding AirPrime WS Series embedded module.

Also, C600 and D604 connected on 4V (VBATT) may affect power consumption on 4V (VBATT). Disconnect these 2 components if necessary.

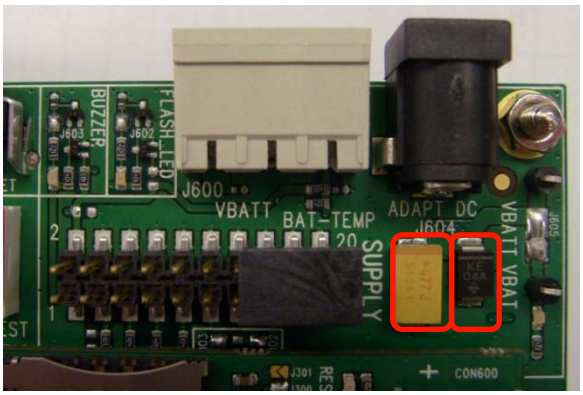
Configure the AirPrime WS Series Development Kit Board as follows:

- Around the Power Supply area:
  - Unsolder jumper J605 to disconnect VBATT and VBAT.

- Around the UART2 area:
  - Disconnect UART2 from the embedded module by opening soldering jumpers J201 to J204.



- Around the VBATT area:
  - Remove C600 and D604 in order to eliminate the current drawn by the application circuit on the AirPrime WS Series Development Kit.



  - Open soldering jumper J605 in order to separate the power supplies of the AirPrime WS Series Development Kit and the AirPrime WS Series embedded module.
  - Connect an additional 4V external power supply to the test point TP602 (“VBAT”) and ground. This will be used to supply the peripherals on the development kit board.

Note: The current from J600 is supplied to the AirPrime WS Series embedded module; while the current from TP602 is supplied to the AirPrime WS Series Development Kit.

Measure the current consumption of the AirPrime WS Series embedded module from J600.

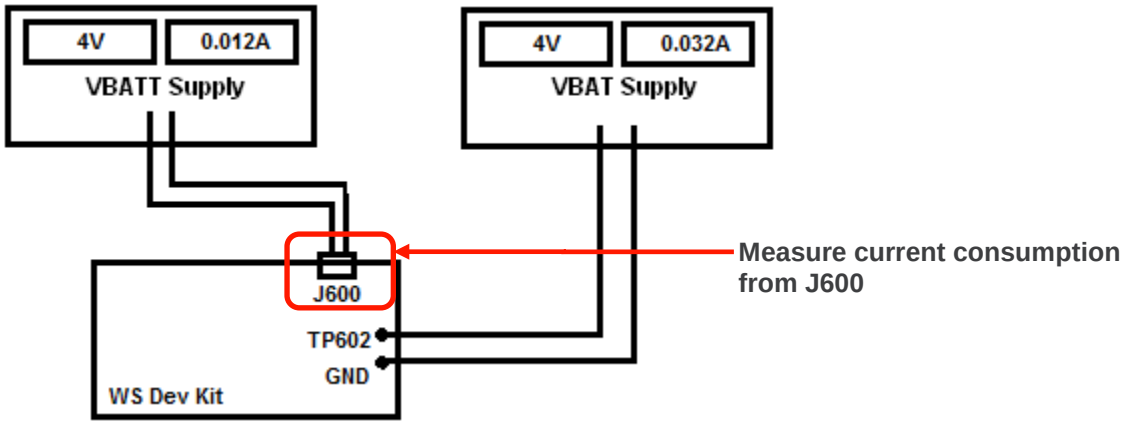


Figure 50. Current Consumption Measurement Setup

9. Reference Documents

[1] AirPrime WISMO218 Product Technical Specification and Customer Design Guideline

Reference: WA_DEV_W218_PTS_002

[2] AirPrime WISMO228 Product Technical Specification and Customer Design Guideline

Reference: WA_DEV_W228_PTS_002

[3] AirPrime WS6318 Product Technical Specification and Customer Design Guidelines

Reference: 4110999 (Legacy reference number: WA_DEV_W6318_PTS_001)

[4] AT Command Manual for AirPrime WS Series Firmware L23

Reference: WA_DEV_WISMO_UGD_012

[5] AirPrime WS6318 AT Command Manual for Firmware L30

Reference: 4111702 (Legacy reference number: WA_DEV_W6318_UGD_004)

[6] AirPrime WS Series Development Kit User Guide
(for board versions earlier than 1499682-B)

Reference: 4110966 (Legacy reference number: WA_DEV_W218_UGD_004)

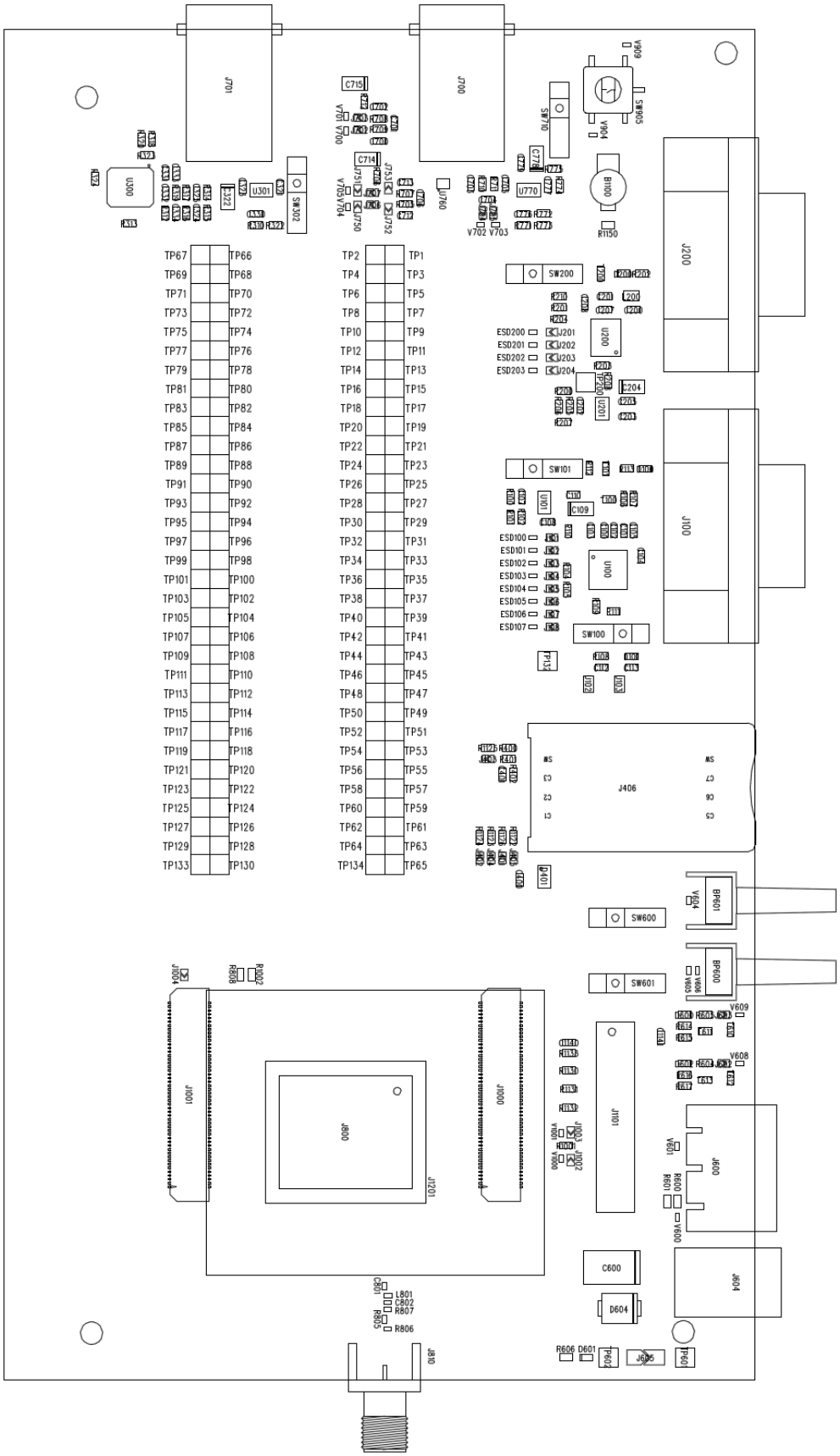
10. List of Abbreviations

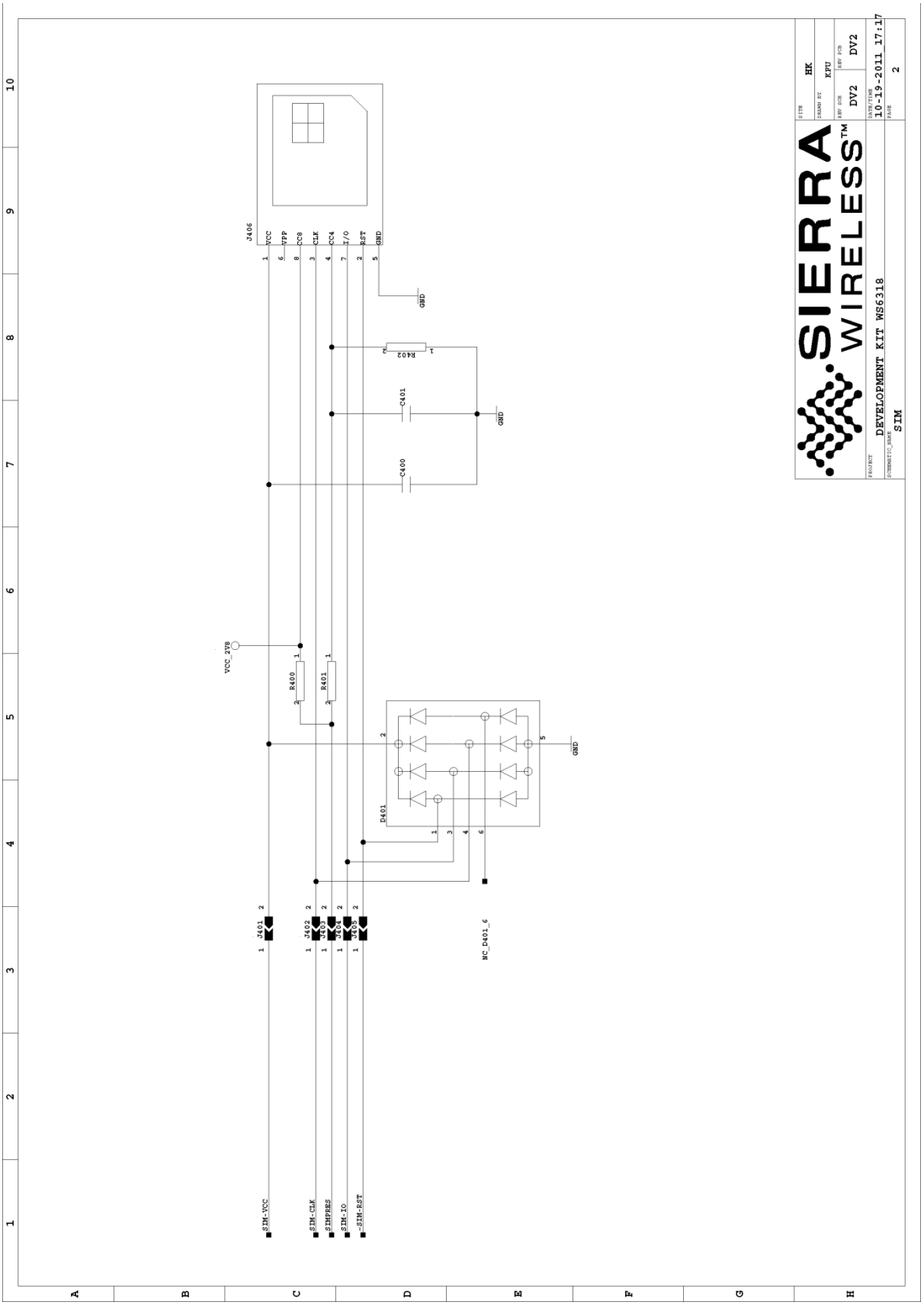
Abbreviation	Definition
ADC	Analog to Digital Converter
AUX	AUXiliary
CLK	CLocK
CPU	Central Process Unit
CTS	Clear To Send
DAC	Digital to Analog Converter
DC	Direct Current
DCD	Data Carrier Detect
DCE	Data Communication Equipment
DSR	Data Set Ready
DTE	Data Terminal Equipment
DTR	Data Terminal Ready
ESD	ElectroStatic Discharges
GND	GrouND
GPI	General Purpose Input
GPIO	General Purpose Input Output
GPO	General Purpose Output
IIC (I2C)	Inter IC Control bus
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
SIM	Subscriber Identity Module
SPI	Serial Peripheral Interface
SPK	SPeaKer
TP	Test Point
TXD	Transmit Data
UART	Universal Asynchronous Receiver-Transmitter
USB	Universal Serial Bus

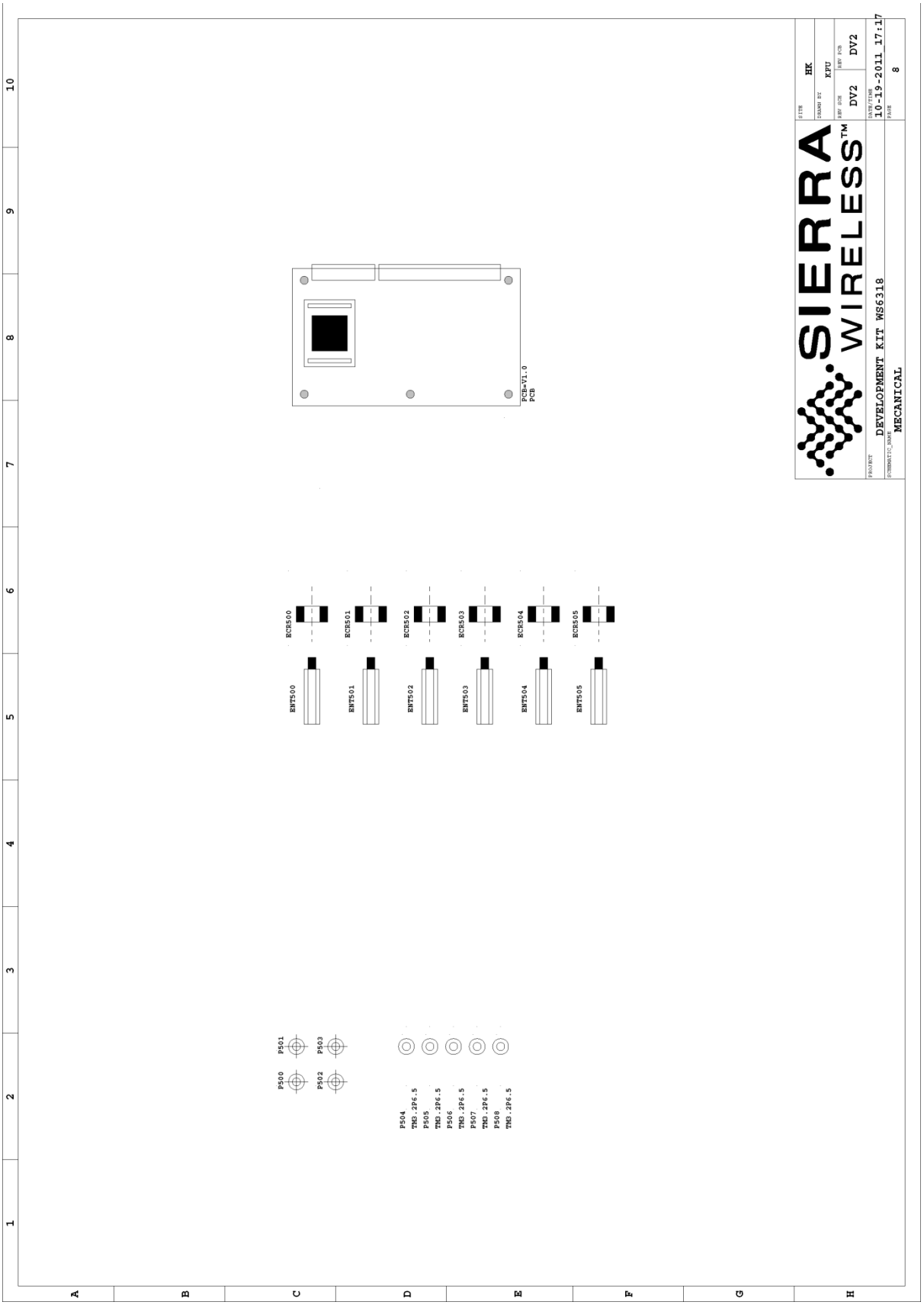
11. Appendix

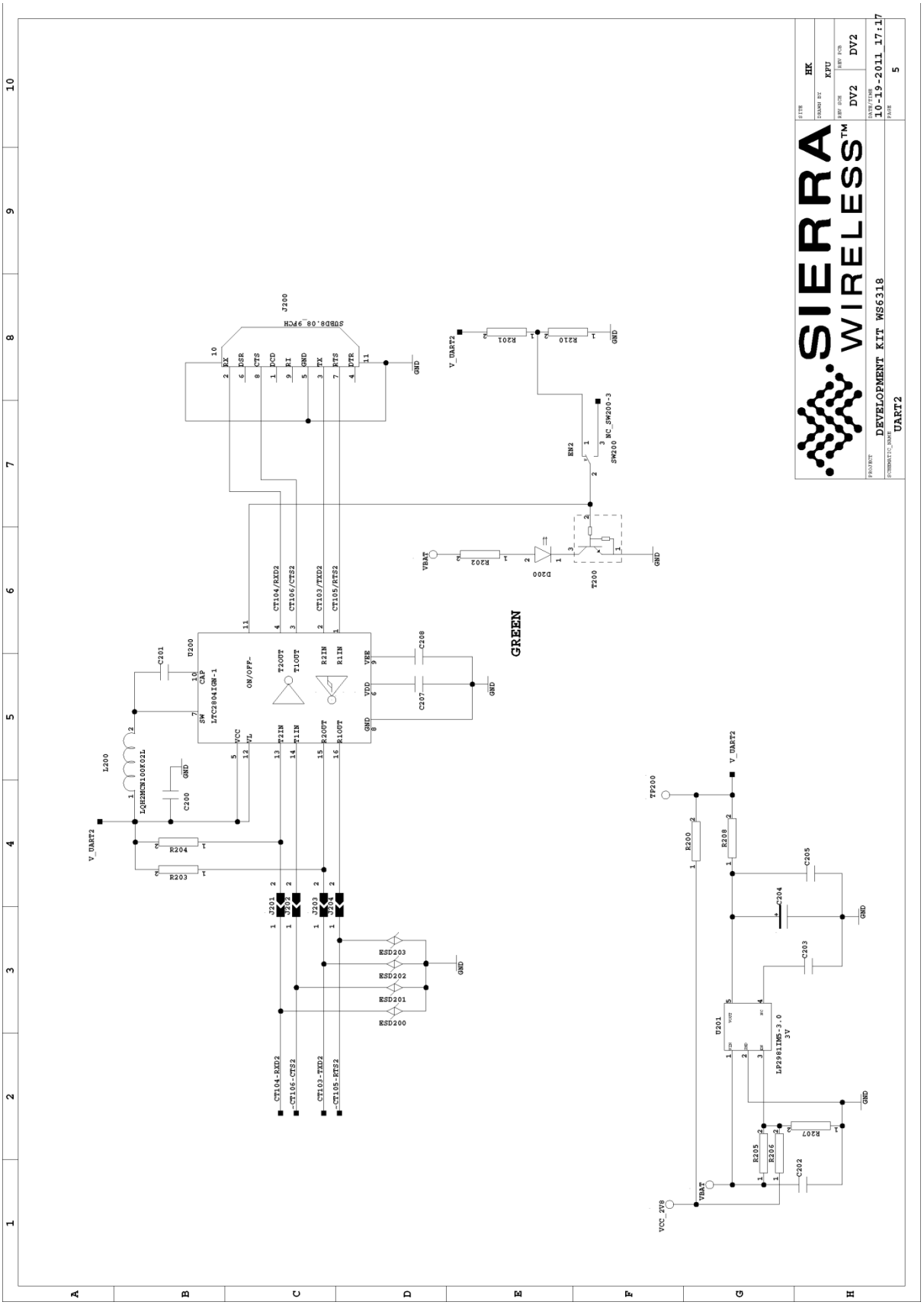
This section contains schematic diagrams for the AirPrime WS Series Development Kit and Socket Board.

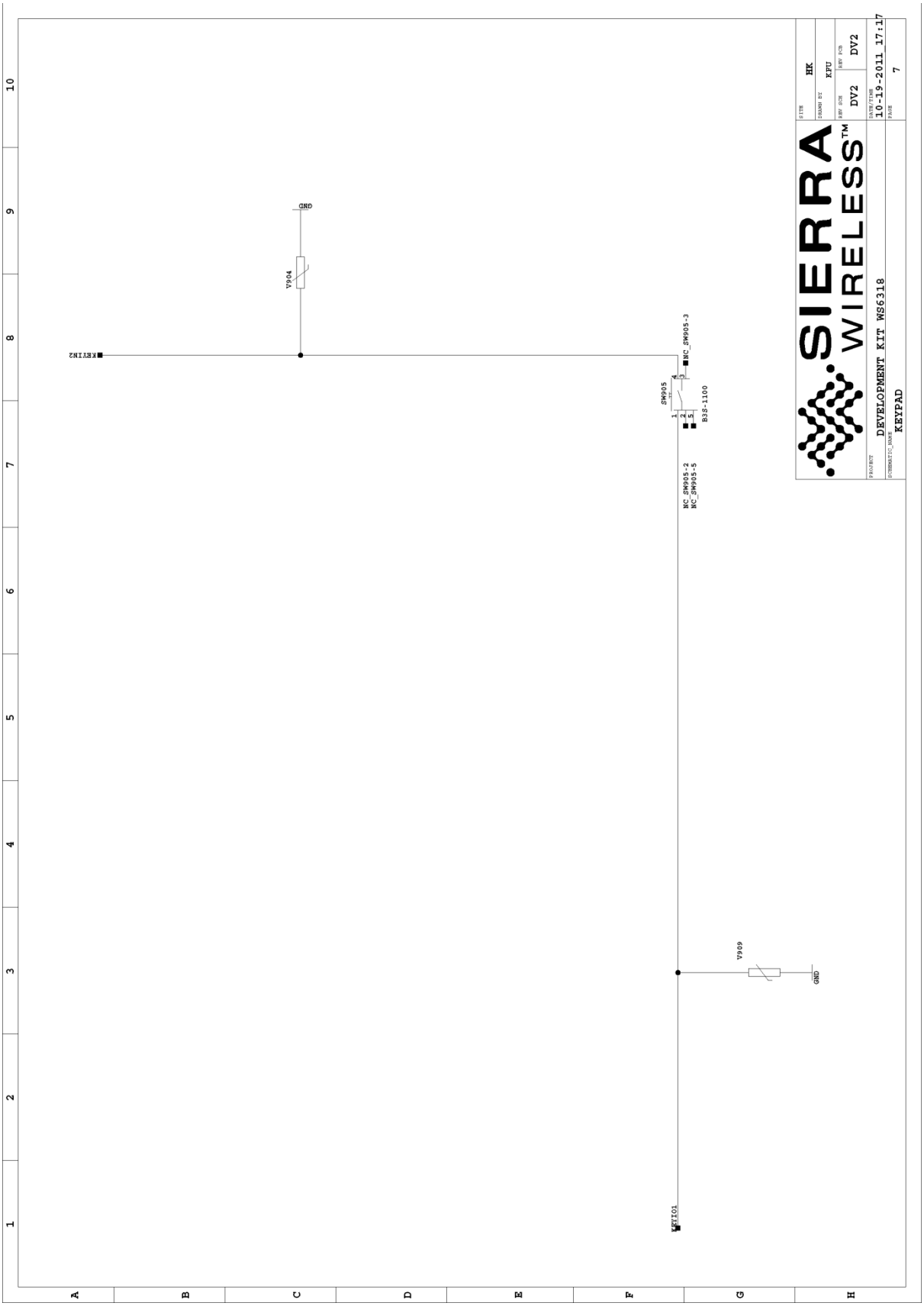
11.1. AirPrime WS Series Development Kit

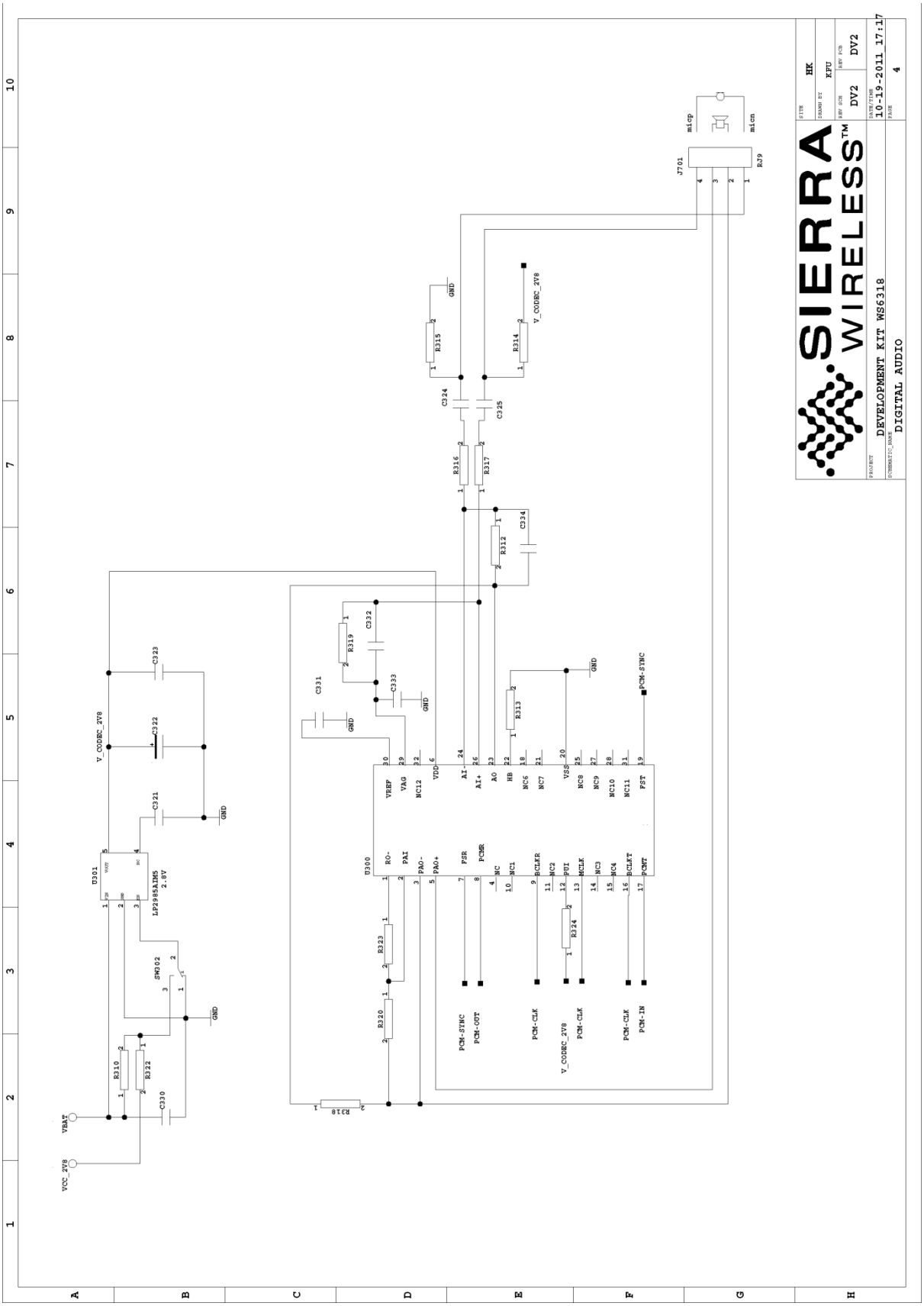


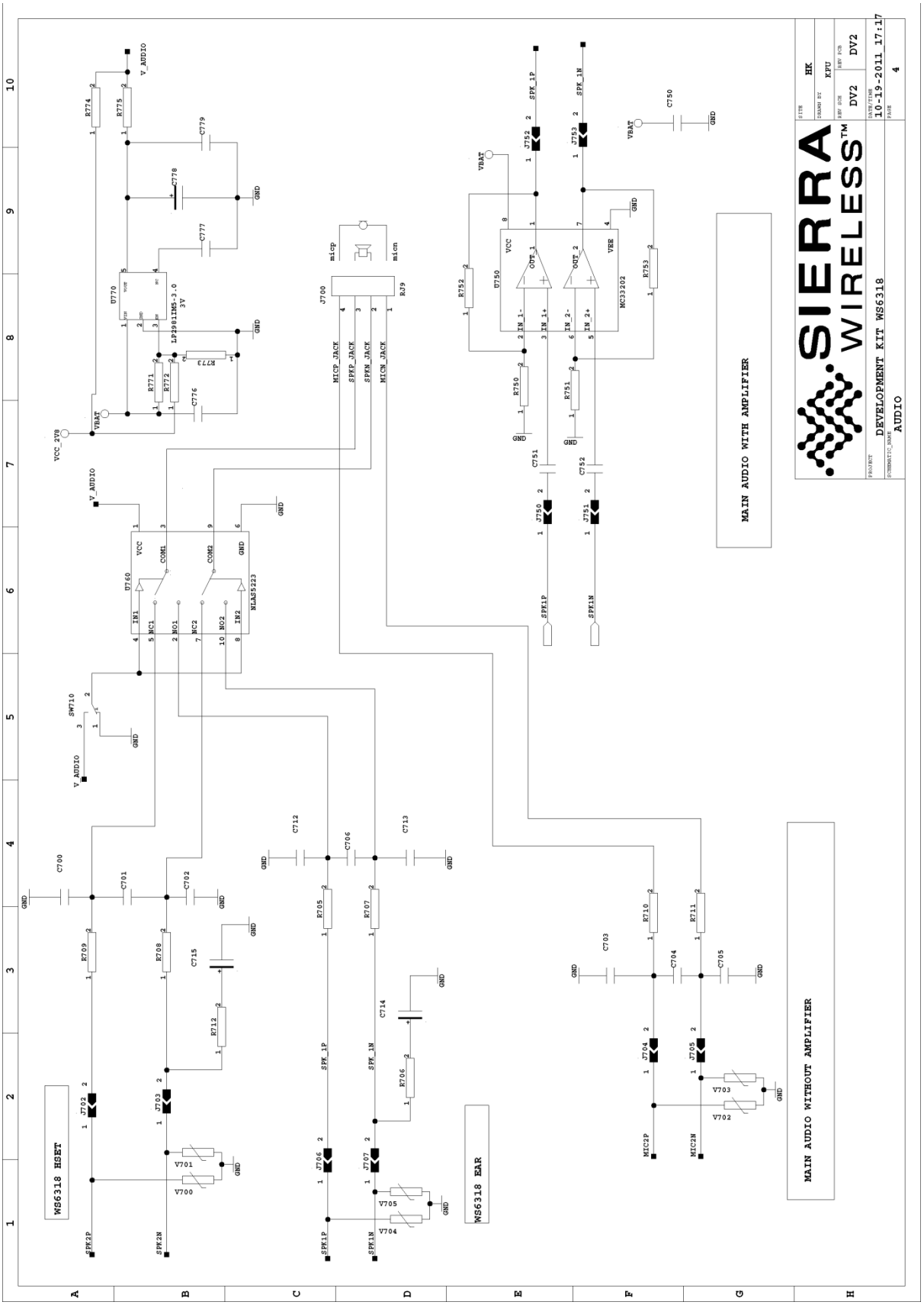

J406
VCC
VPP
CC8
CLK
CC4
I/O
RST
GND
R402
C401
C400
VCC_2V8
R400
R401
D401
J401
J402
J403
J404
J405
SIM-VCC
SIM_CLK
SIMPRES
SIM_IO
SIM-RST
NC_D401_6
SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
SIM
10-19-2011 17:17
DV2

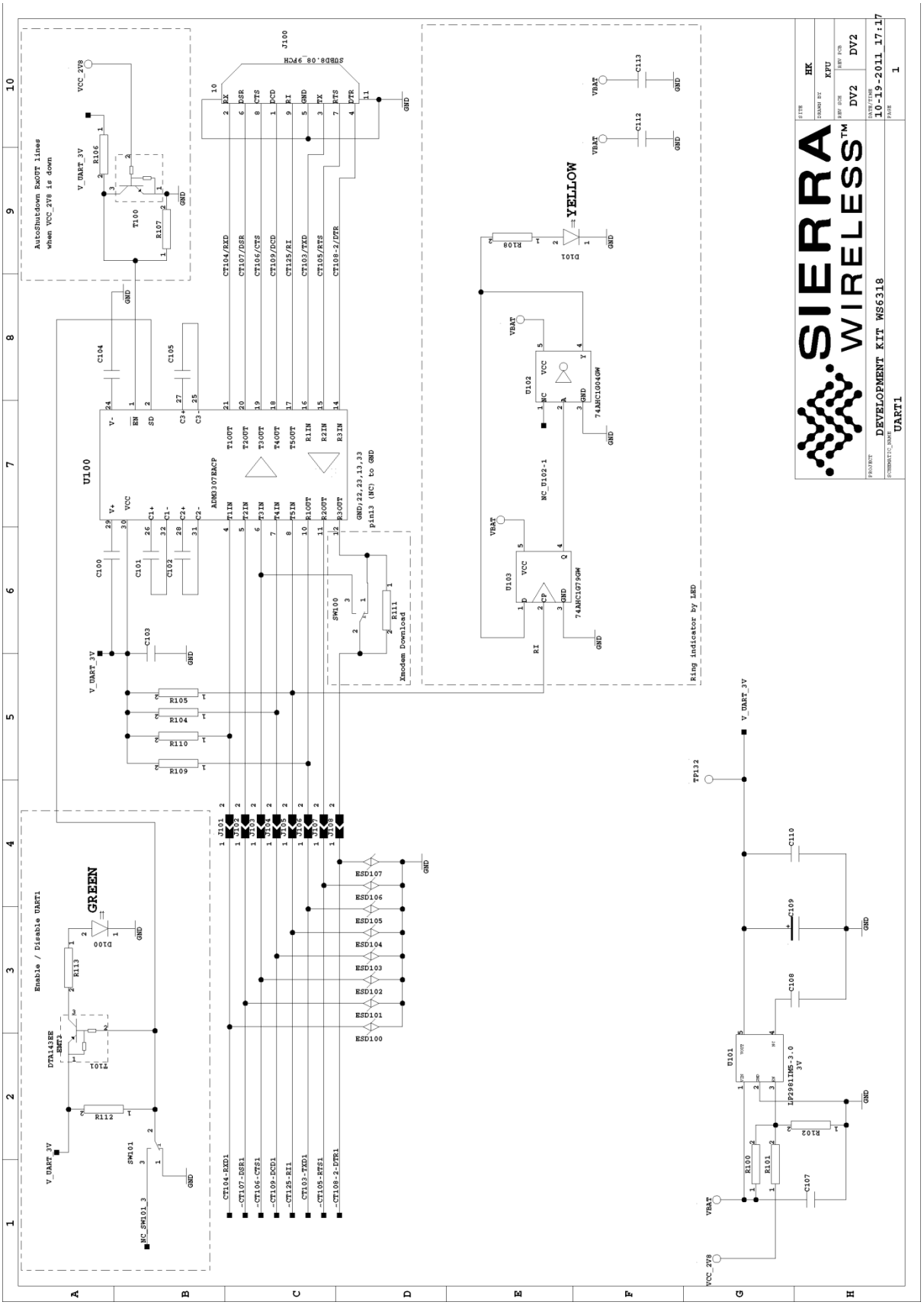

SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
MECANICAL
10-19-2011 17:17
DV2
PCB-V1.0
PCB
RCB500
RCB501
RCB502
RCB503
RCB504
RCB505
ENT500
ENT501
ENT502
ENT503
ENT504
ENT505
P500
P501
P502
P503
P504
TM3.2P6.5
P505
TM3.2P6.5
P506
TM3.2P6.5
P507
TM3.2P6.5
P508
TM3.2P6.5

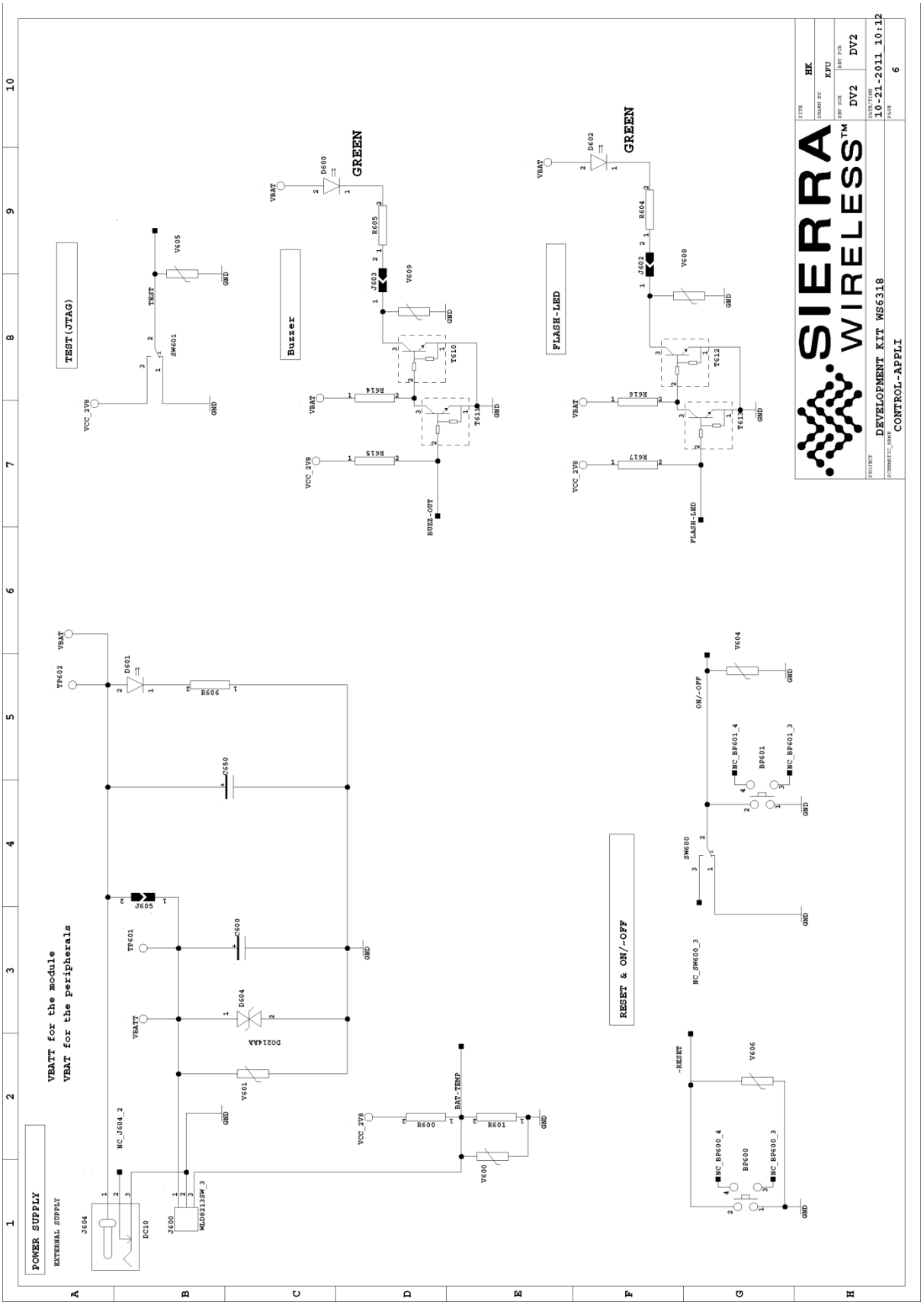

SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
UART2
10-19-2011 17:17
DV2
HK
KPU
5
J200
SUBD8.08_9PCH
U200
LTC2804IGN-1
L200
LQM2MCN100K02L
D201
LP2981IM5-3.0
3V
D200
SW200
NC_SW200-3
T200
GREEN
ESD203
ESD202
ESD201
ESD200
TP200
V_UART2
VBAT
VCC_2V8
GND

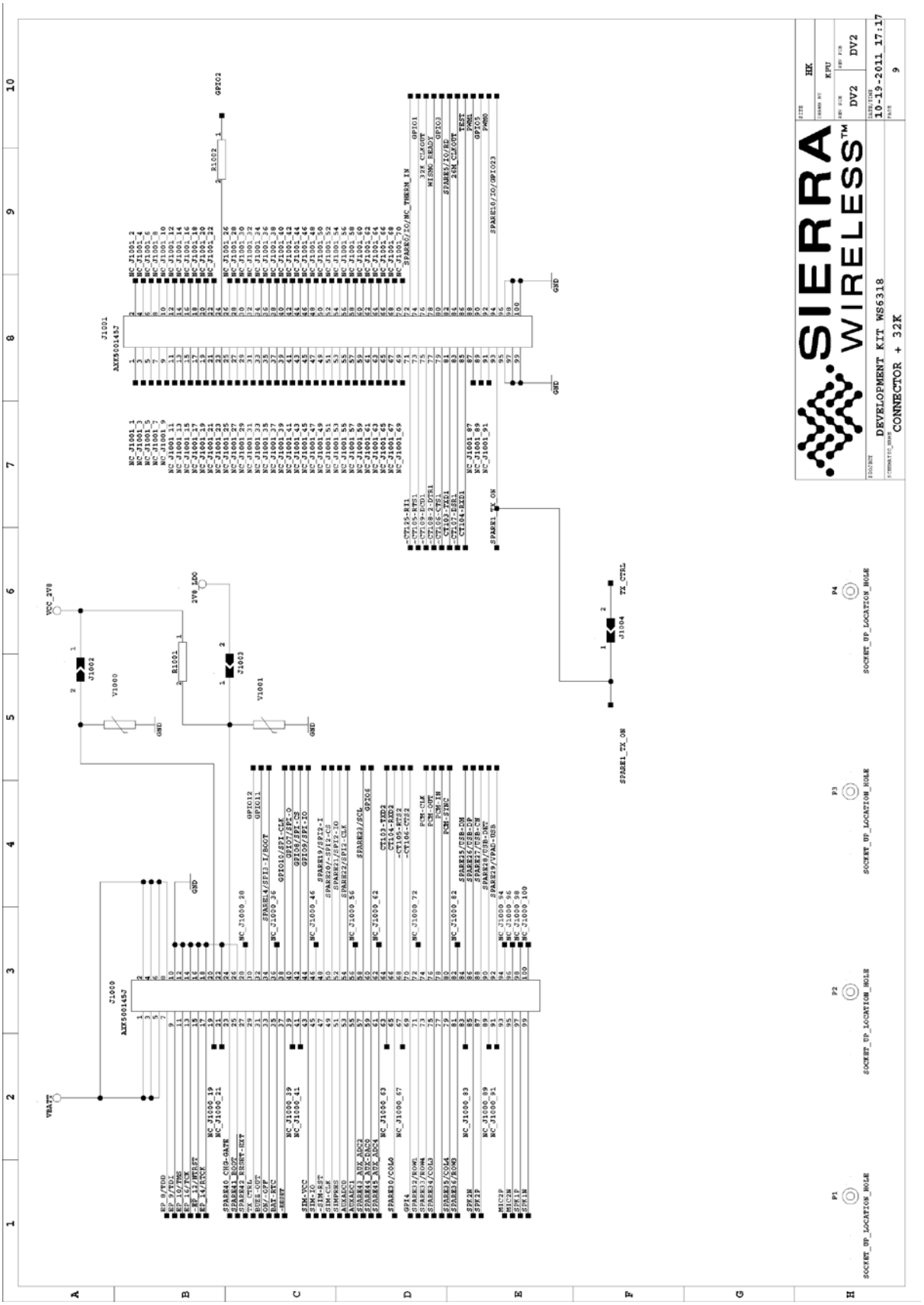

GND
V904
KEYIN2
SW905
MC_SW905-3
MC_SW905-2
MC_SW905-5
B3S-1100
V909
GND
KEYIO1
SIERRA WIRELESS™
HK
KPU
DV2
DV2
10-19-2011 17:17
7
DEVELOPMENT KIT WS6318
KEYPAD

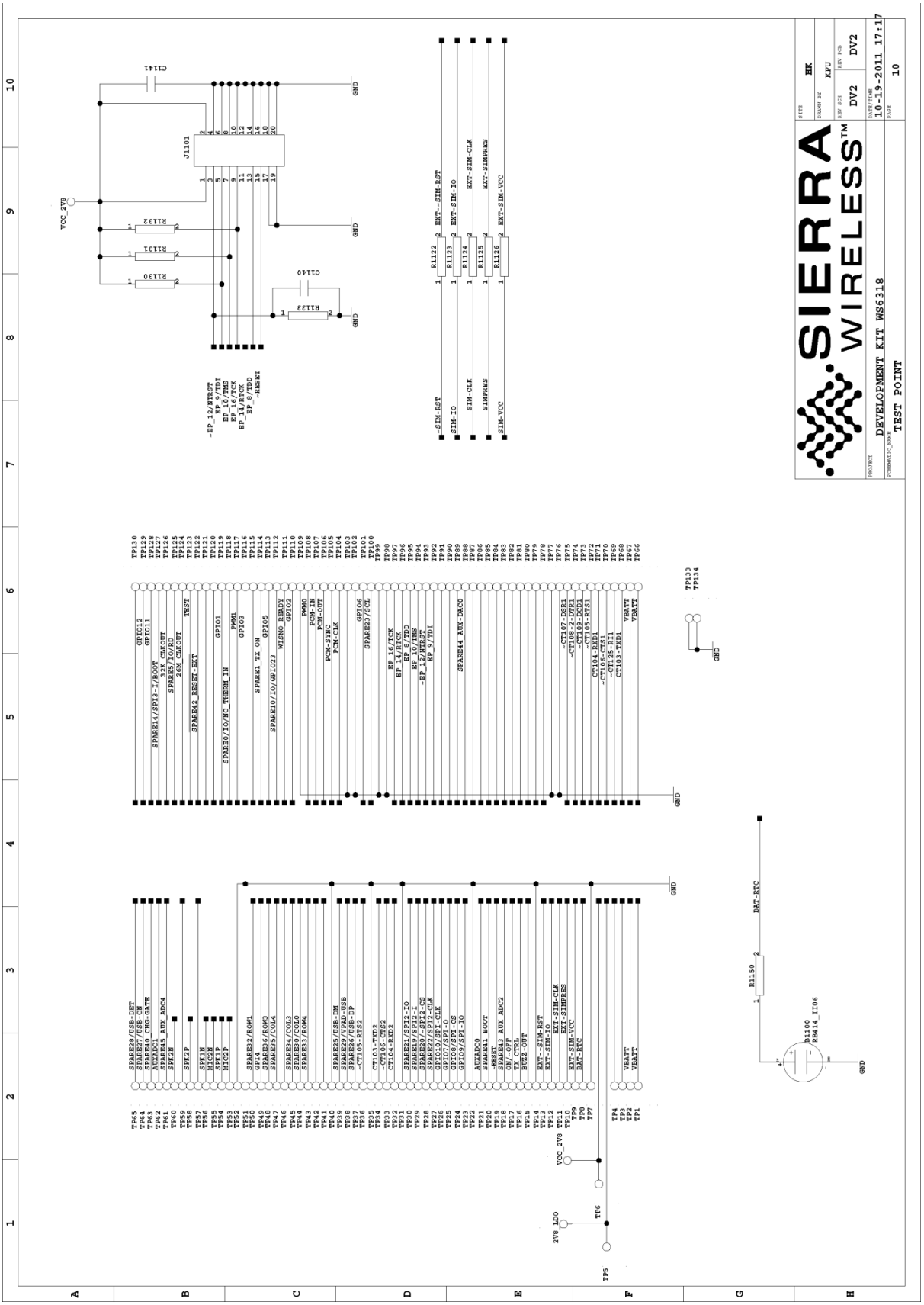

SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
DIGITAL AUDIO
10-19-2011 17:17
DV2
KPU
HK
micp
micn
J701
R29
V_CODEC_2V8
VBAT
VCC_2V8
GND
D300
D301
LP2985AIM5 2.8V
SW302
C321
C322
C323
C324
C325
C330
C331
C332
C333
C334
R310
R312
R313
R314
R315
R316
R317
R318
R319
R320
R322
R323
R324
PCM-SYNC
PCM-OUT
PCM-CLK
PCM-IN

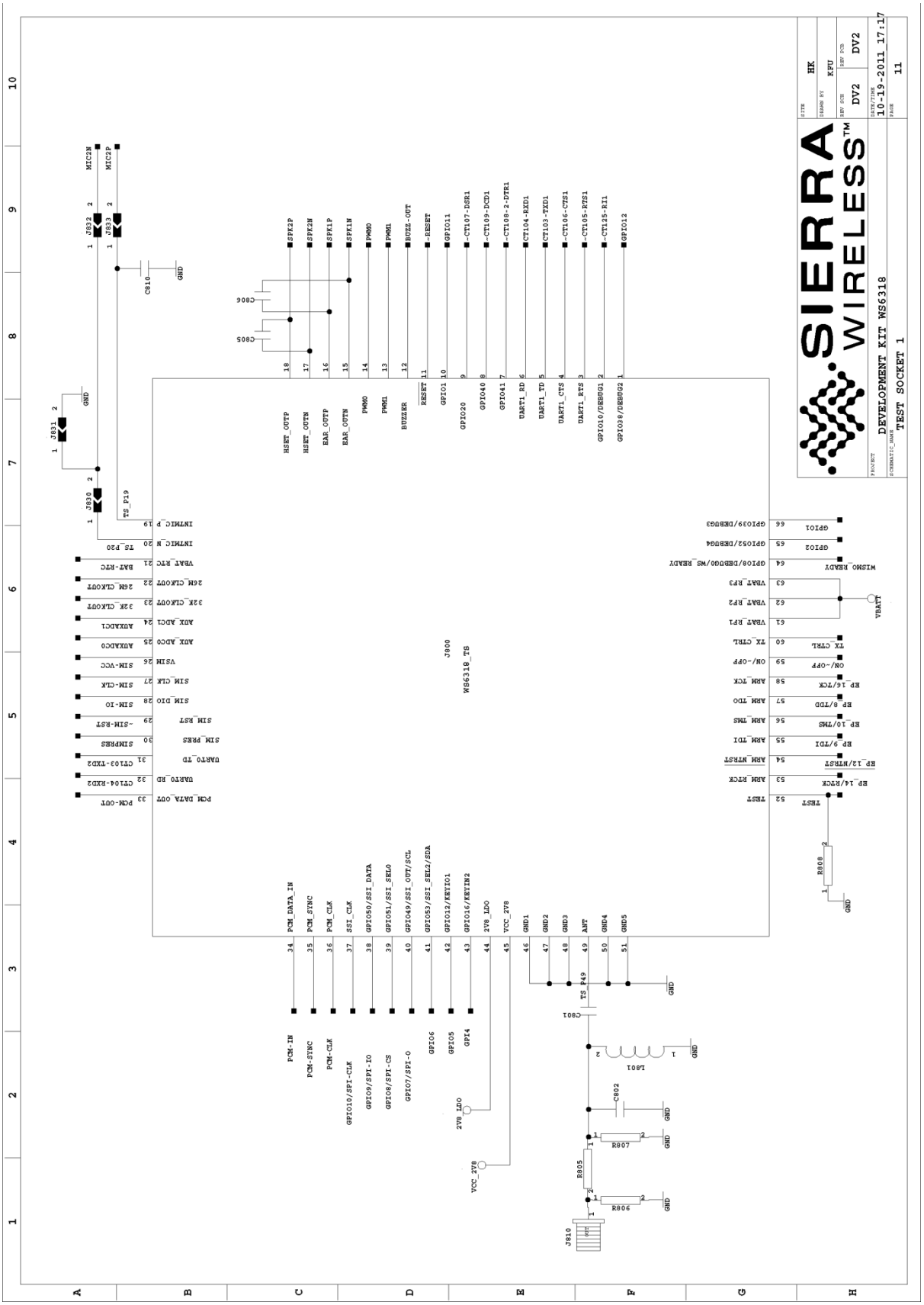

SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
AUDIO
10-19-2011 17:17
DV2
HK
KPU
MAIN AUDIO WITH AMPLIFIER
MAIN AUDIO WITHOUT AMPLIFIER
WS6318 HSET
WS6318 EAR
V_AUDIO
VBAT
VCC_2V8
GND
SPK_1P
SPK_1N
SPK1P
SPK1N
SPK2P
SPK2N
MIC2P
MIC2N
micp
micn
MICP_JACK
SPKP_JACK
SPKN_JACK
MICN_JACK
MC33202
NLAS5223
LP3981IMM-3.0
V700
V701
V702
V703
V704
V705
V706
V707


SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
UART1
10-19-2011 17:17
DV2
HK
KPU
U100
ADM3307EACP
J100
SUBDB.08.9PCH
D100
GREEN
D101
YELLOW
D102
74AHC1G04GW
D103
74AHC1G79GW
Enable / Disable UART1
Ring indicator by LED
Xmodem Download
AutoShutdown RxOUT lines
when VCC_2V8 is down
V_UART_3V
VCC_2V8
VBAT
GND


SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
CONTROL-APPLI
10-21-2011 10:12
DV2
POWER SUPPLY
EXTERNAL SUPPLY
VBATT for the module
VBAT for the peripherals
TEST(JTAG)
Buzzer
FLASH-LED
RESET & ON/-OFF
GREEN
GREEN
BUZZ-OUT
FLASH-LED
ON/-OFF
-RESET
BAT-TEMP
VBAT
VCC_2V8
GND


SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
CONNECTOR + 32K
10-19-2011 17:17
DV2
J1000
J1001
J1002
J1003
J1004
R1101
R1102
V1000
V1001
VBATT
VCC_2V8
2V8_LDO
GND
P1
P2
P3
P4
SOCKET_EP_LOCATION_HOLE


SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
TEST POINT
10-19-2011 17:17
DV2
HK
KPU
GPIO12
GPIO11
SPARE14/SPI3-T/BOOT
SPARE13/SPI3-CLK/CLKOUT
SPARE9/IO/RD
26M_CLKOUT
SPARE42_RESET_EXT
GPIO1
SPARE8/IO/NC_THERM_IN
PWM1
GPIO3
SPARE1_TX_ON
GPIO5
SPARE10/IO/GPIO23
WISMO_RESET
GPIO2
PWM0
PCM_IN
PCM_OUT
PCM_SYNC
PCM_CLK
GPIO6
SPARE23/SCL
EP_16/TCK
EP_14/RTCK
EP_8/TDO
EP_10/TMS
-EP_12/NTRST
EP_9/TDI
SPARE44_ADX_DAC0
-CT107_DSR1
-CT108-2_DTR1
-CT125_RI1
CT104_RXD1
-CT106_CTS1
-CT105_RTS1
CT103_TXD1
VBATT
SPARE2/ROW1
SPARE5/ROW3
SPARE35/COL4
SPARE4/COL3
SPARE30/COL0
SPARE33/ROW4
SPARE25/USB_DM
SPARE29/USB_VBUS
SPARE26/USB_DP
-CT105_RTS2
CT103_TXD2
-CT106_CTS2
CT104_RXD2
SPARE21/SPI2_IO
SPARE19/SPI2_I
SPARE20/-SPI2_CS
SPARE18/SPI2_CLK
GPIO7/SPI_O
GP108/SPI_CS
GPIO9/SPI_IO
AUXADC0
SPARE41_BOOT
SPARE43_ADX_ADC2
ON/-OFF
PA_CTRL
RTS2_OUT
EXT--SIM-RST
EXT-SIM-IO
EXT-SIM-CLK
EXT-SIMPRES
EXT-SIM-VCC
BAT-RTC
VCC_2V8
2V8_LDO
GND
J1101
R1122
R1123
R1124
R1125
R1126
R1130
R1131
R1132
R1133
R1150
C1141
C1140
B1100
RB414_II06
TP1
TP2
TP3
TP4
TP5
TP6
TP133
TP134


SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
TEST SOCKET 1
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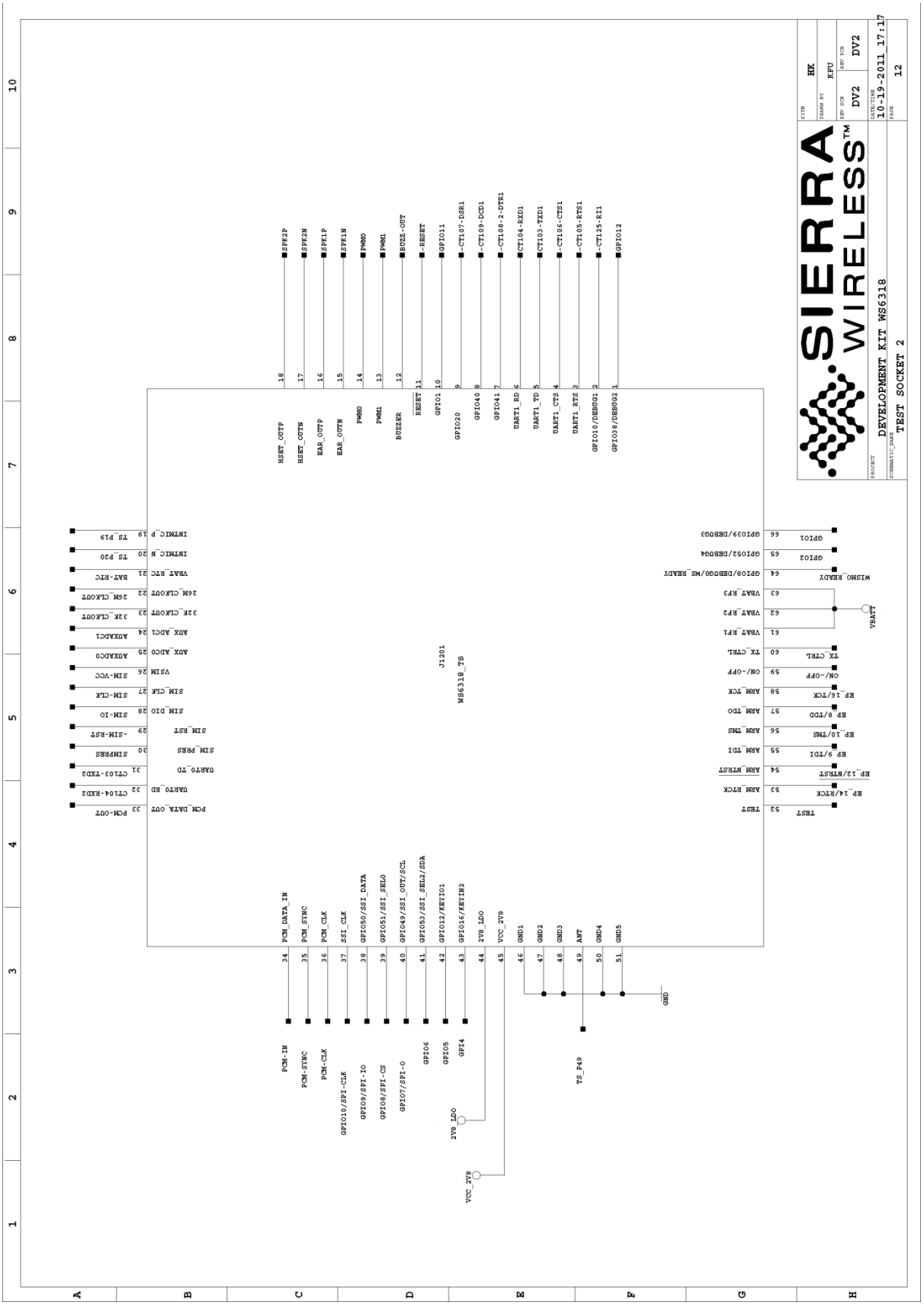
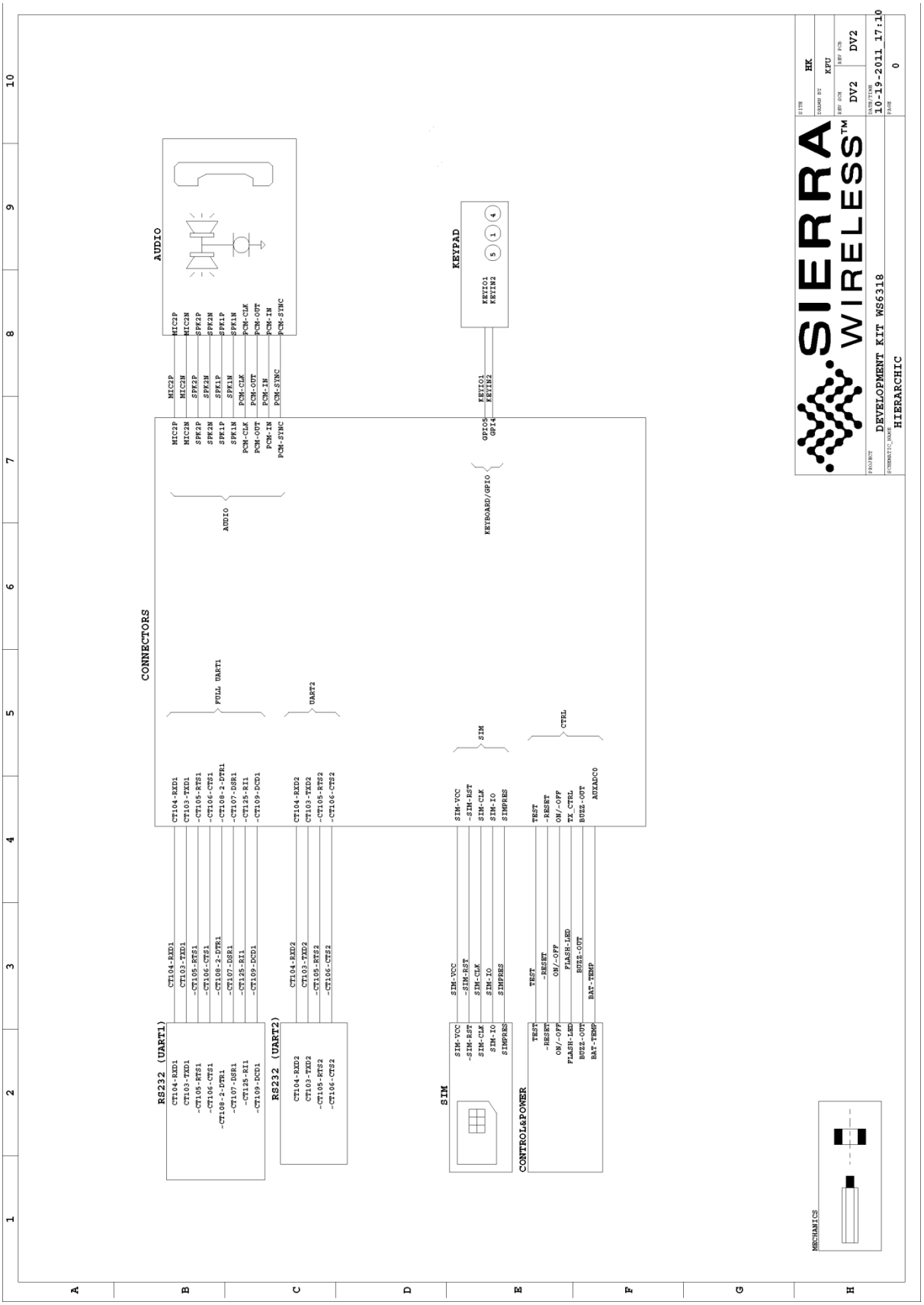
DY2
HK
KFU
J800
WS6318_TS
J831
J832
J833
J830
C810
C806
C805
C801
C802
L801
R808
R807
R805
R806
J810
MIC2N
MIC2P
SPK2P
SPK2N
SPK1P
SPK1N
PWM0
PWM1
BUZZ-OUT
-RESET
GPIO11
-CT107-DSR1
-CT109-DCD1
-CT108-2-DTR1
CT104-RXD1
CT103-TXD1
-CT106-CTS1
-CT105-RTS1
-CT125-RI1
GPIO12
HSET_OUTP
HSET_OUTN
EAR_OUTP
EAR_OUTN
BUZZER
RESET
GPIO1
GPIO20
GPIO40
GPIO41
UART1_RD
UART1_TD
UART1_CTS
UART1_RTS
GPIO10/DEBUG1
GPIO38/DEBUG2
INTMIC_P
INTMIC_N
VBAT_RTC
26M_CLKOUT
32K_CLKOUT
AUX_ADC1
AUX_ADC0
VSIM
SIM_VCC
SIM_CLK
SIM_DIO
SIM_RST
SIMPRES
UART0_TD
UART0_RD
PCM_DATA_OUT
GPIO39/DEBUG3
GPIO52/DEBUG4
WISMO_READY
VBAT_RP3
VBAT_RP2
VBAT_RP1
TX_CTRL
ON/-OFF
RP_16/TCK
RP_8/TDD
RP_10/TMS
RP_9/TDI
RP_12/NTRST
RP_14/RTCK
TEST
PCM_DATA_IN
PCM_SYNC
PCM_CLK
SSI_CLK
GPIO50/SSI_DATA
GPIO51/SSI_SEL0
GPIO49/SSI_OUT/SCL
GPIO53/SSI_SEL2/SDA
GPIO12/KEYIO1
GPIO16/KEYIN2
2V8_LDO
VCC_2V8
GND1
GND2
GND3
ANT
GND4
GND5
PCM-IN
PCM-SYNC
PCM-CLK
GPIO10/SPI-CLK
GPIO9/SPI-IO
GPIO8/SPI-CS
GPIO7/SPI-O
GPIO6
GPIO5
GPI4
2V8_LDO
VCC_2V8
GND


SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
TEST SOCKET 2
10-19-2011 17:17
DV2
HK
KPU
12
J1201
WS6318_TS
SPK2P
SPK2N
SPK1P
SPK1N
PWM0
PWM1
BUZZ-OUT
-RESET
GPIO11
-CT107-DSR1
-CT109-DCD1
-CT108-2-DTR1
CT104-RXD1
CT103-TXD1
-CT106-CTS1
-CT105-RTS1
-CT125-RI1
GPIO12
HSET_OUTP
HSET_OUTN
EAR_OUTP
EAR_OUTN
RESET
GPIO1
GPIO20
GPIO40
GPIO41
UART1_RD
UART1_TD
UART1_CTS
UART1_RTS
GPIO10/DEBUG1
GPIO38/DEBUG2
INTMIC_P
INTMIC_N
VBAT_RTC
26M_CLKOUT
32K_CLKOUT
AUX_ADC1
AUX_ADC0
VSIM
SIM_CLK
SIM_DIO
SIM_RST
UART0_TD
UART0_RD
PCM_DATA_OUT
TS_P19
TS_P20
BAT-RTC
SIM-VCC
SIM-CLK
SIM-IO
-SIM-RST
SIMPRES
CT103-TXD2
CT104-RXD2
PCM-OUT
GPIO39/DEBUG3
GPIO52/DEBUG4
GPIO8/DEBUG0/WS_READY
VBAT_RF3
VBAT_RF2
VBAT_RF1
TX_CTRL
ON/-OFF
ARM_TCK
ARM_TDO
ARM_TMS
ARM_TDI
ARM_NTRST
ARM_RTCK
TEST
WISMO_READY
GPIO1
GPIO2
VBATT
RF_16/TCK
RF_0/TDD
RF_10/TMS
RF_9/TDI
RF_12/NTRST
RF_14/RTCK
PCM_DATA_IN
PCM_SYNC
PCM_CLK
SSI_CLK
GPIO50/SSI_DATA
GPIO51/SSI_SEL0
GPIO49/SSI_OUT/SCL
GPIO53/SSI_SEL2/SDA
GPIO12/KEYIO1
GPIO16/KEYIN2
2V8_LDO
VCC_2V8
GND1
GND2
GND3
ANT
GND4
GND5
PCM-IN
PCM-SYNC
PCM-CLK
GPIO10/SPI-CLK
GPIO9/SPI-IO
GPIO8/SPI-CS
GPIO7/SPI-O
GPIO6
GPIO5
GPI4
2V8_LDO
VCC_2V8
TS_P49
GND


AUDIO
KEYPAD
CONNECTORS
RS232 (UART1)
RS232 (UART2)
SIM
CONTROL&POWER
FULL UART1
UART2
SIM
CTRL
KEYBOARD/GPIO
SIERRA WIRELESS™
DEVELOPMENT KIT WS6318
HIERARCHIC
10-19-2011 17:10
DV2
MECHANICS

11.2. AirPrime WISMO2x8 Socket Board

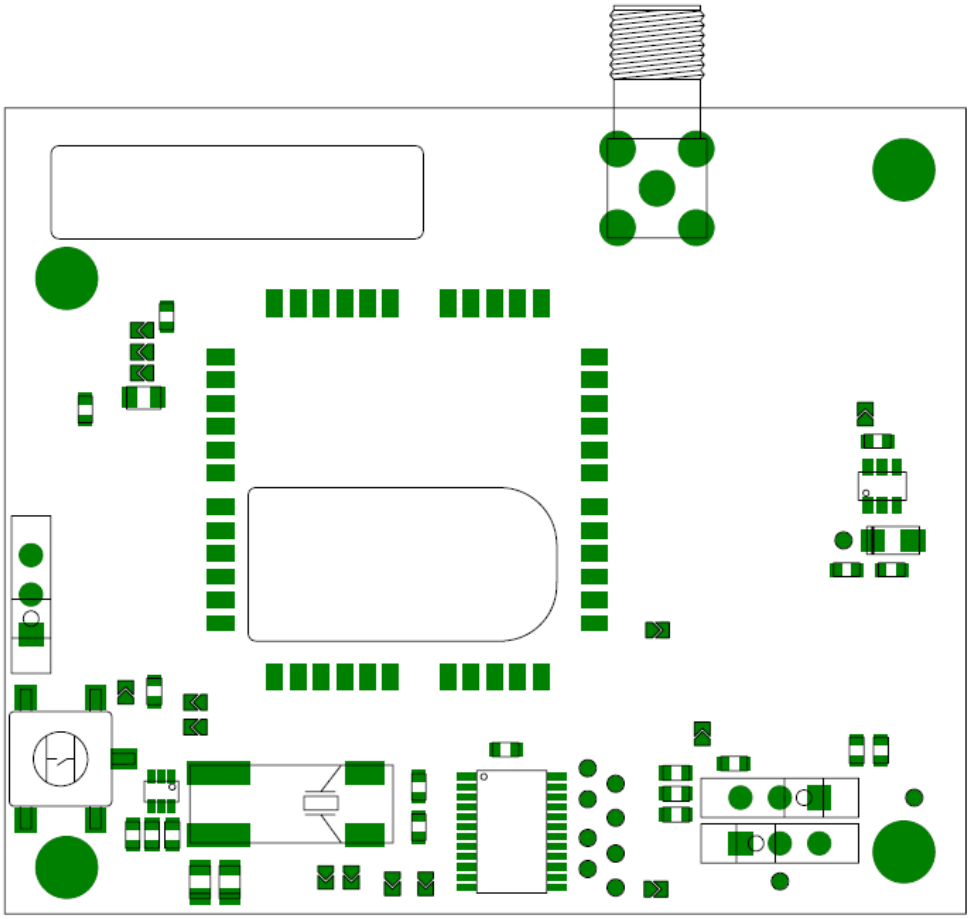


Figure 51. AirPrime WISMO2x8 Socket Board Assembly (Top View)

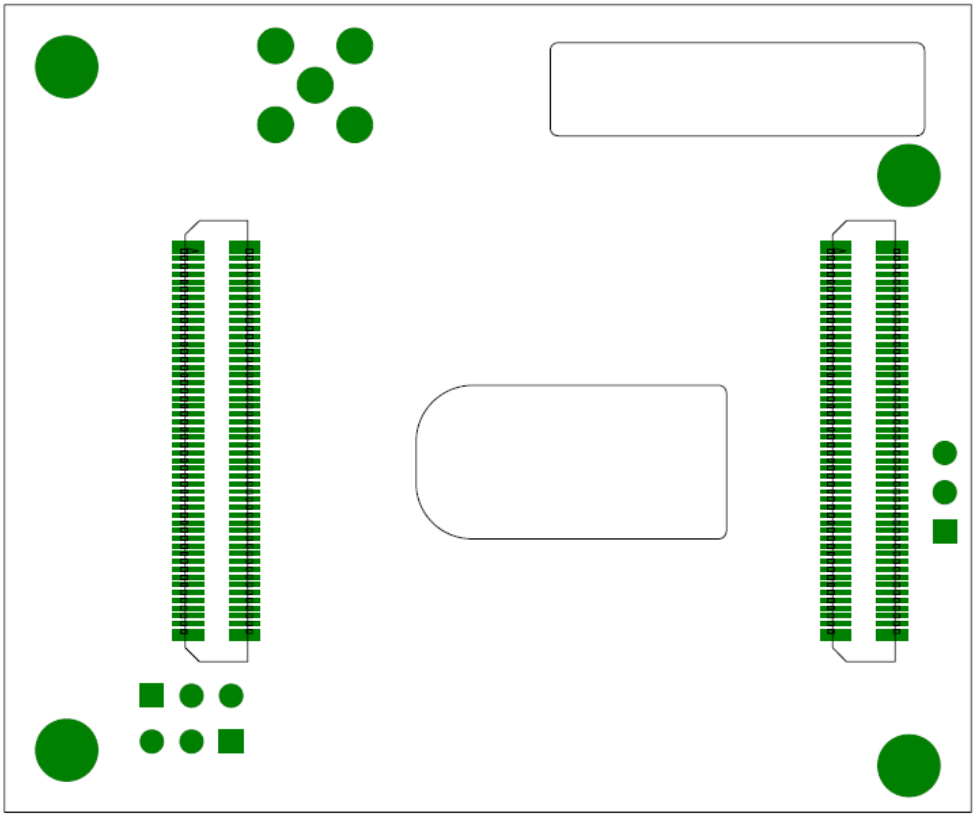
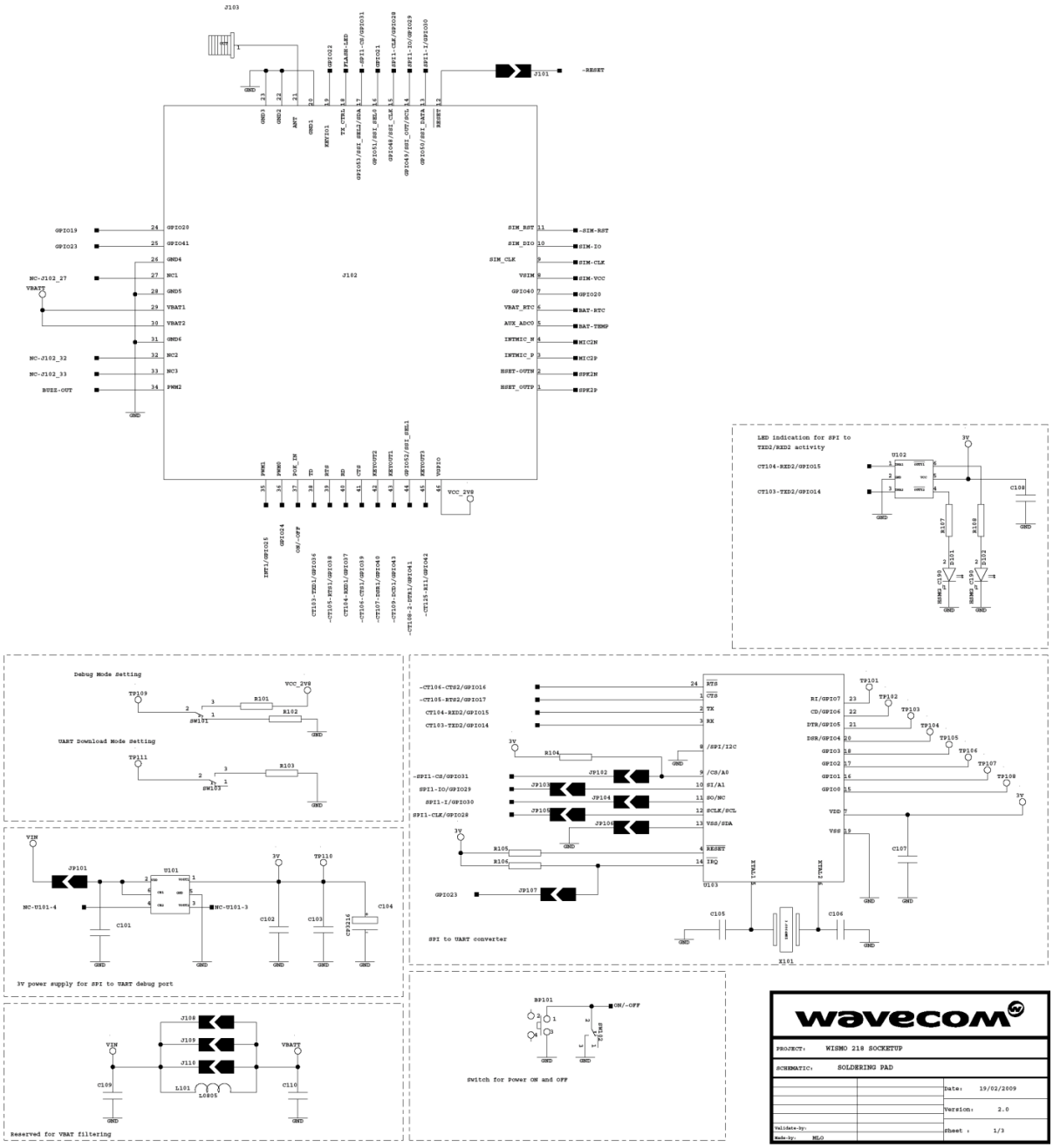
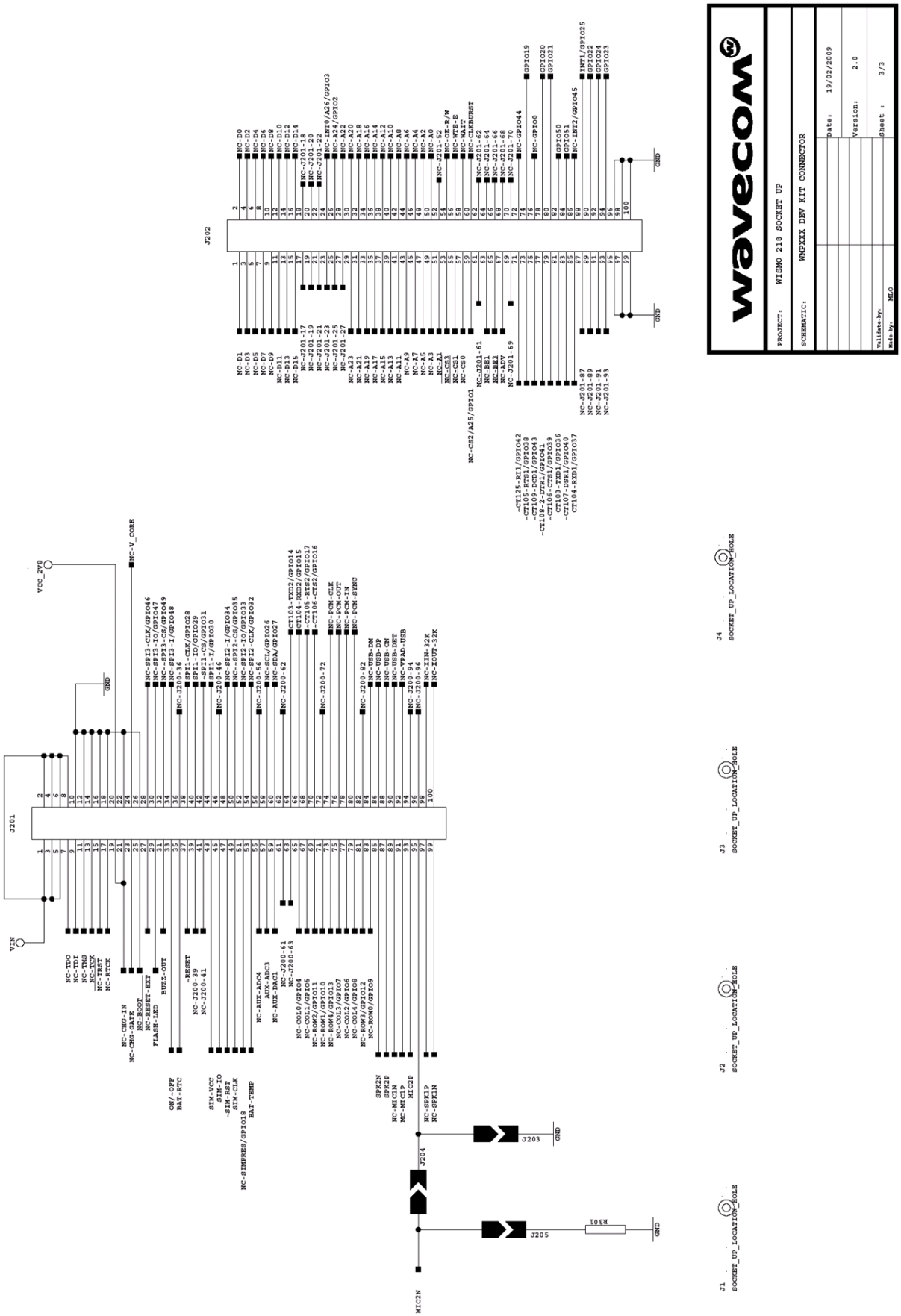


Figure 52. AirPrime WISMO2x8 Socket Board Assembly (Bottom View)


J103
J101
-RESET
J102
GPIO19
GPIO23
NC-J102_27
VBATT
NC-J102_32
NC-J102_33
BUZZ-OUT
GPIO20
GPIO41
GND4
NC1
GND5
VBAT1
VBAT2
GND4
NC2
NC3
PWM2
SIM_RST
SIM_DIO
SIM_CLK
VSIM
GPIO40
VBAT_RTC
AUX_ADC0
INTMIC_N
INTMIC_P
HSET-OUTN
HSET_OUTP
-SIM-RST
SIM-IO
SIM-CLK
SIM-VCC
GPIO20
BAT-RTC
BAT-TEMP
MICGN
MICGP
SPKZN
SPKZP
VCC_2V8
GND
LED indication for SPI to
TXD2/RXD2 activity
CT104-RXD2/GPIO15
CT103-TXD2/GPIO14
U102
3V
C138
R167
R168
D101
D102
Debug Mode Setting
TP109
R101
R102
SW101
VCC_2V8
UART Download Mode Setting
TP111
R103
SW102
3V power supply for SPI to UART debug port
VIN
JP101
U101
TP110
NC-U101-4
NC-U101-3
C101
C102
C103
C104
CF3216
-CT106-CTS2/GPIO16
-CT105-RTS2/GPIO17
CT104-RXD2/GPIO15
CT103-TXD2/GPIO14
-SPI1-CS/GPIO31
SPI1-IO/GPIO29
SPI1-I/GPIO30
SPI1-CLK/GPIO28
GPIO23
R104
JP102
JP103
JP104
JP105
JP106
JP107
R105
R106
U103
RTS
CTS
TX
RX
/SPI/I2C
/CS/A0
SI/A1
SO/NC
SCLK/SCL
VSS/SDA
RESET
IRQ
X1MAX
X2MAX
C105
C106
X101
SPI to UART converter
TP101
TP102
TP103
TP104
TP105
TP106
TP107
TP108
RI/GPIO7
CD/GPIO6
DTR/GPIO5
DSR/GPIO4
GPIO3
GPIO2
GPIO1
GPIO0
VDD
VSS
C107
J108
J109
J110
L101
L0805
C109
C110
VBATT
Reserved for VBAT filtering
BP101
ON/-OFF
SW103
Switch for Power ON and OFF
wavecom
PROJECT: WISMO 218 SOCKETUP
SCHEMATIC: SOLDERING PAD
Date: 19/02/2009
Version: 2.0
Validate-by:
Made-by: MLO
Sheet : 1/3


wavecom
PROJECT: WISMO 218 SOCKET UP
SCHEMATIC: WMPXXX DEV KIT CONNECTOR
Date: 19/02/2009
Version: 2.0
Validate by:
Made by: MLO
Sheet : 3/3
J201
J202
J203
J204
J205
J1
J2
J3
J4
SOCKET_UP_LOCATION_HOLE
VCC_2V8
VIN
GND
MIC2N
R301

11.3. AirPrime WS6318 Socket Board

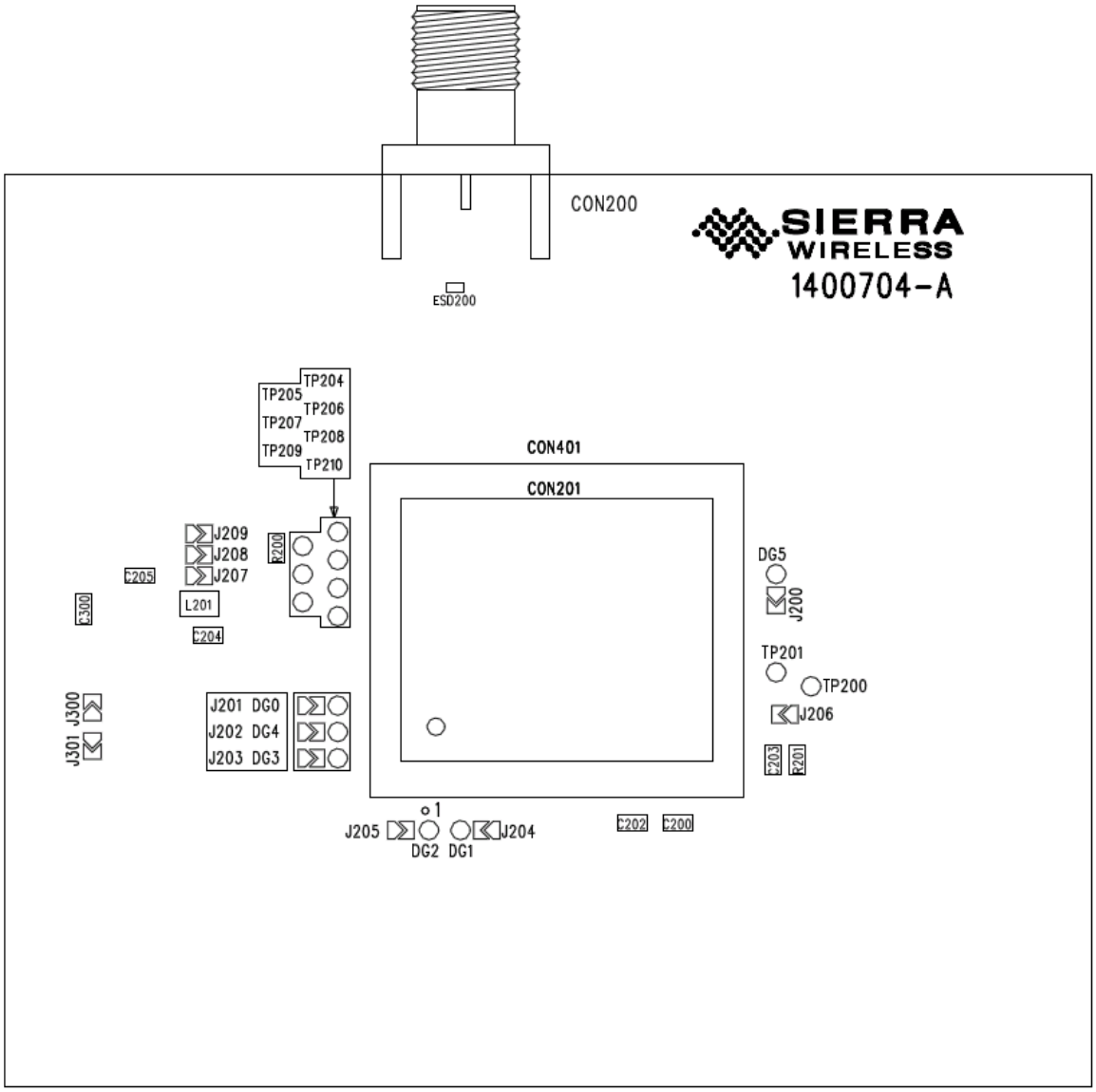
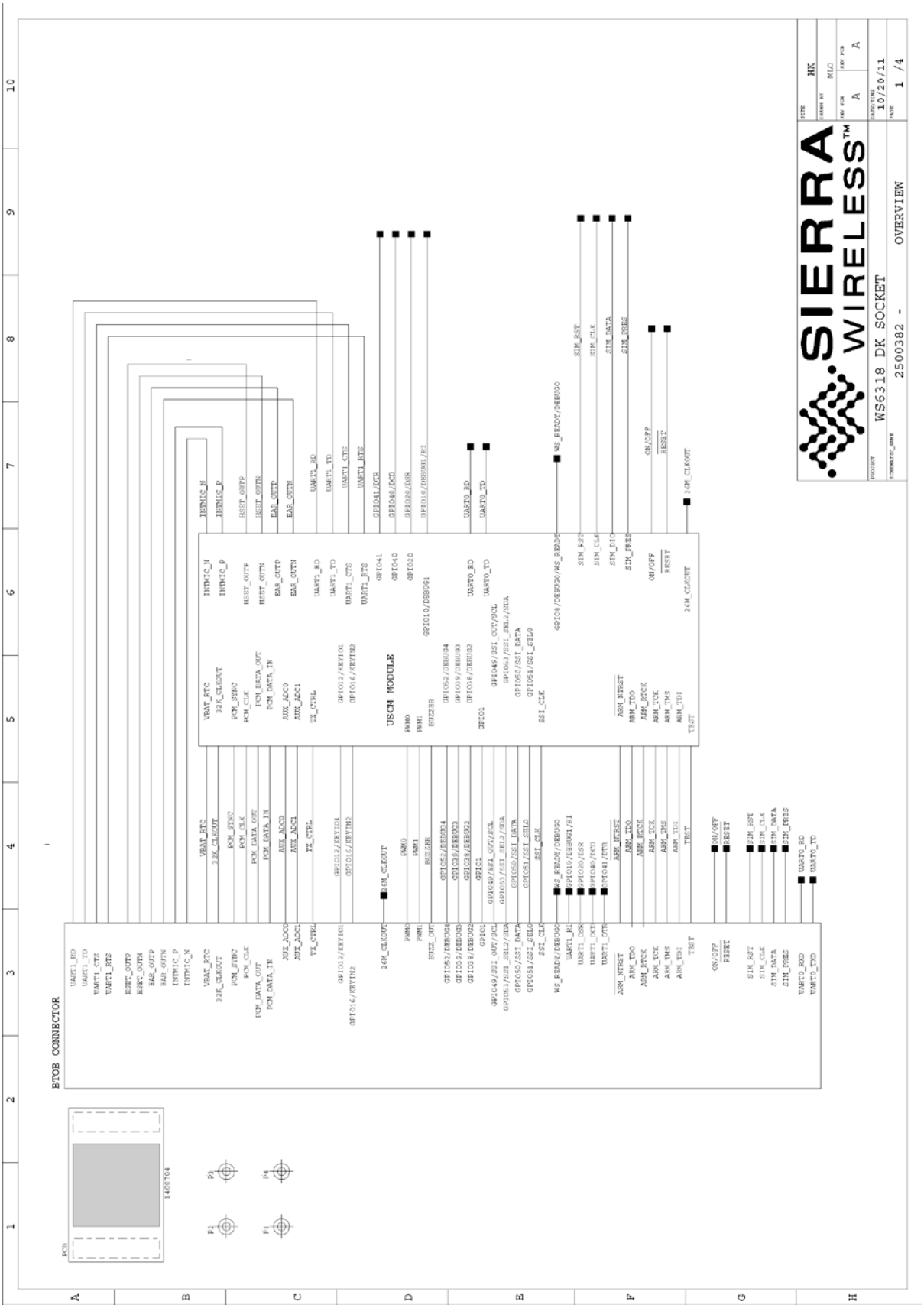
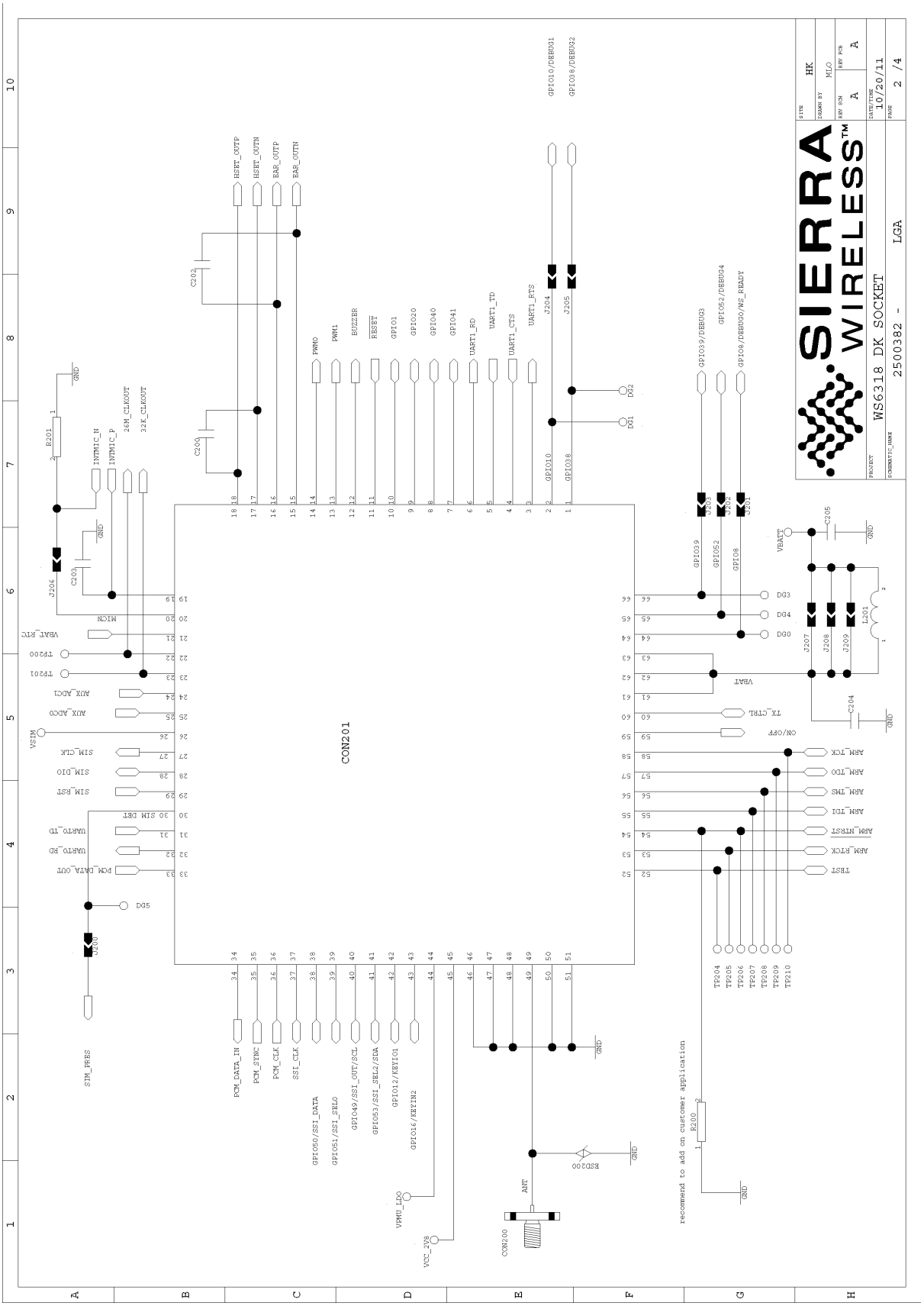
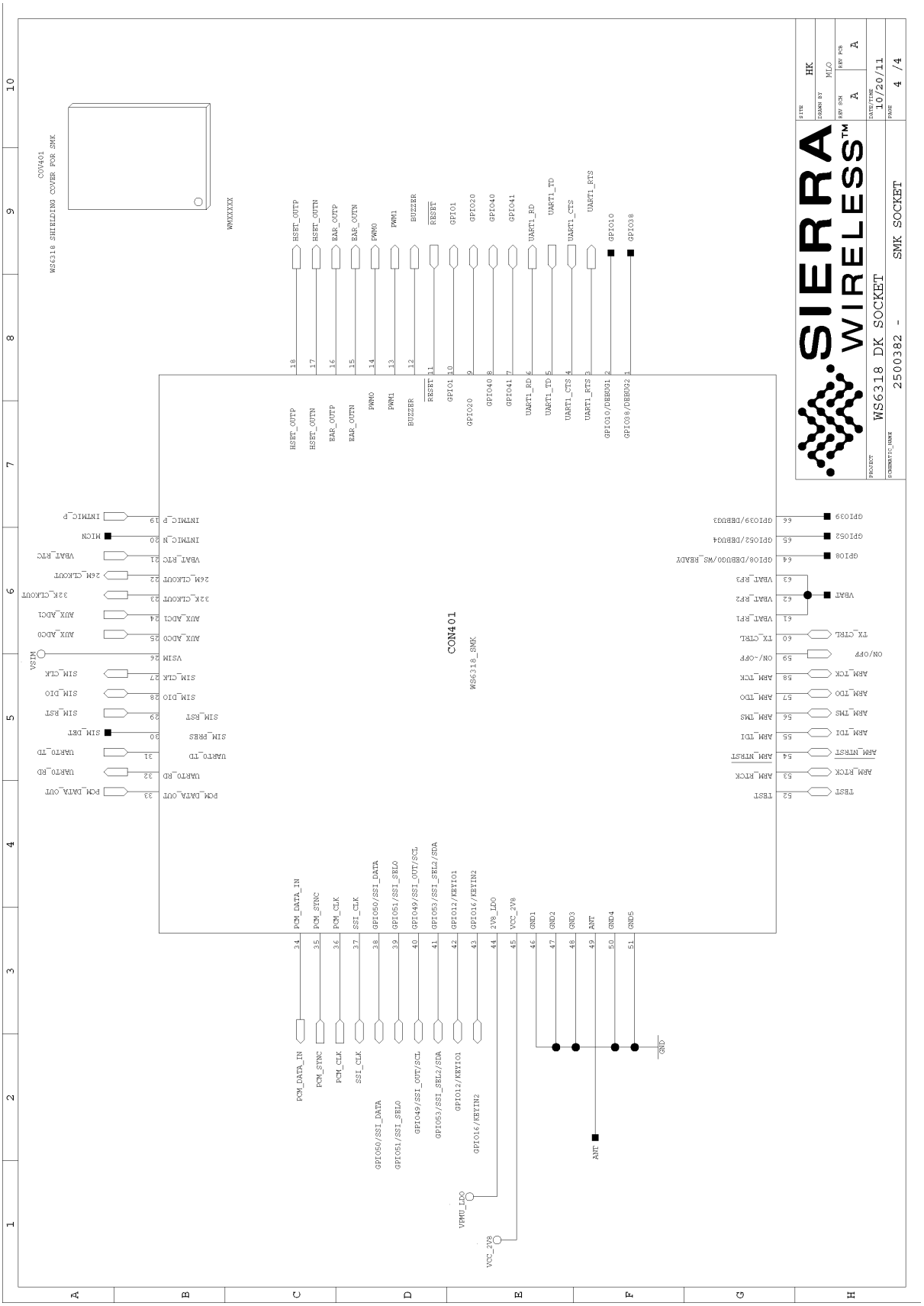
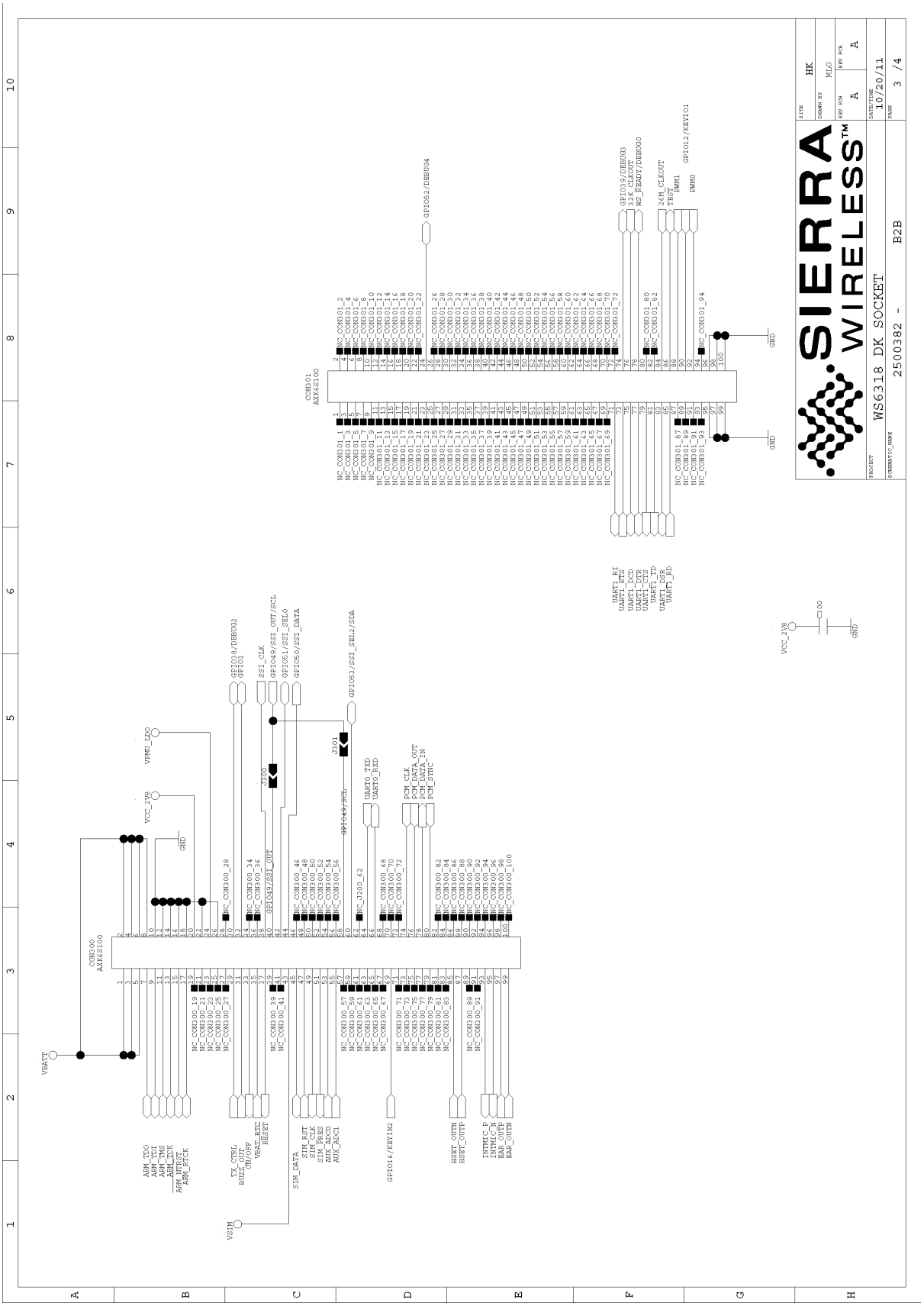


Figure 53. AirPrime WS6318 Socket Board Component Placement Diagram (Top View)


SIERRA WIRELESS™
WS6318 DK SOCKET
2500382 -
OVERVIEW
10/20/11
1 /4
USCH MODULE
BTOB CONNECTOR
VBAT_RTC
32K_CLKOUT
PCM_SYNC
PCM_CLK
PCM_DATA_OUT
PCM_DATA_IN
AUX_ADC0
AUX_ADC1
TX_CTRL
GPIO12/KEYIO1
GPIO16/KEYIN2
26M_CLKOUT
PWM0
PWM1
BUZZER
GPIO52/DBG04
GPIO39/DBG03
GPIO38/DBG02
GPIO1
GPIO49/SSI_OUT/SCL
GPIO53/SSI_SEL2/SDA
GPIO50/SSI_DATA
GPIO51/SSI_SEL0
SSI_CLK
WS_READY/DBG00
GPIO19/DBG01/RI
GPIO49/DSR
GPIO41/DTR
ARM_NTRST
ARM_TDO
ARM_TCK
ARM_TCK
ARM_TMS
ARM_TDI
TEST
ON/OFF
RESET
SIM_RST
SIM_CLK
SIM_DATA
SIM_PRES
UART0_RXD
UART0_TXD
INTMIC_N
INTMIC_P
HSET_OUTP
HSET_OUTN
EAR_OUTP
EAR_OUTN
UART1_RD
UART1_TD
UART1_CTS
UART1_RTS
GPIO41/DCD
GPIO40/DCD
GPIO20/DSR
GPIO19/DBG01/RI
UART0_RD
UART0_TD
GPIO100/DBG05/WS_READY
SIM_RST
SIM_CLK
SIM_DATA
SIM_PRES
ON/OFF
RESET
26M_CLKOUT
PCB
P1
P2
P3
P4
14x6.704


SIERRA WIRELESS™
WS6318 DK SOCKET
2500382 - LGA
10/20/11
2 /4
HK
MLO
A
A
CON201
HSET_OUTP
HSET_OUTN
BAR_OUTP
BAR_OUTN
PWM0
BUZZER
RESET
GPIO1
GPIO20
GPIO40
GPIO41
UART1_RD
UART1_TD
UART1_CTS
UART1_RTS
GPIO10/DBEN01
GPIO38/DBEN02
GPIO39/DBEN03
GPIO52/DBEN04
GPIO8/DBEN05/WS_READY
INTMIC_N
INTMIC_P
26M_CLKOUT
32K_CLKOUT
MICN
VBAT_RTC
AUX_ADC1
AUX_ADC0
VSIM
SIM_CLK
SIM_DIO
SIM_RST
SIM DET
UART0_TD
UART0_RD
PCM_DATA_OUT
DG5
SIM_PRES
PCM_DATA_IN
PCM_SYNC
PCM_CLK
SSI_CLK
GPIO50/SSI_DATA
GPIO51/SSI_SEL0
GPIO49/SSI_OUT/SCL
GPIO53/SSI_SEL2/SDA
GPIO12/KEYIO1
GPIO16/KEYIN2
VRMO_LDO
VCC_2V8
ANT
CON200
ESD200
DG3
DG4
DG0
VBAT
TX_CTRL
ON/OFF
ARM_TCK
ARM_TDO
ARM_TMS
ARM_TDI
ARM_NTRST
ARM_RTCK
TEST
TP204
TP205
TP206
TP207
TP208
TP209
TP210
recommend to add on customer application
R200
R201
C202
C203
C204
C205
L201
J200
J201
J202
J203
J204
J205
J206
J207
J208
J209
GND


SIERRA WIRELESS™
WS6318 DK SOCKET
2500382 - SMK SOCKET
10/20/11
4 /4
CON401
WS6318_SMK
COV401
WS6318 SHIELDING COVER FOR SMK
WWXXXXX
HSET_OUTP
HSET_OUTN
EAR_OUTP
EAR_OUTN
PWM0
PWM1
BUZZER
RESET
GPIO1
GPIO20
GPIO40
GPIO41
UART1_RD
UART1_TD
UART1_CTS
UART1_RTS
GPIO10
GPIO38
INTMIC_P
INTMIC_N
VBAT_RTC
26M_CLKOUT
32K_CLKOUT
AUX_ADC1
AUX_ADC0
VSIM
SIM_CLK
SIM_DIO
SIM_RST
SIM_PRES
SIM_DET
UART0_TD
UART0_RD
PCM_DATA_OUT
PCM_DATA_IN
PCM_SYNC
PCM_CLK
SSI_CLK
GPIO50/SSI_DATA
GPIO51/SSI_SEL0
GPIO49/SSI_OUT/SCL
GPIO53/SSI_SEL2/SDA
GPIO12/KEYIO1
GPIO16/KEYIN2
2V8_LDO
VCC_2V8
GND1
GND2
GND3
ANT
GND4
GND5
GPIO39/DEBUG3
GPIO52/DEBUG4
GPIO8/DEBUG0/WS_READY
VBAT_RF3
VBAT_RF2
VBAT_RF1
TX_CTRL
ON/-OFF
ARM_TCK
ARM_TDO
ARM_TMS
ARM_TDI
ARM_NTRST
ARM_RTCK
TEST
VBAT
GND


SIERRA WIRELESS™
WS6318 DK SOCKET
2500382 - B2B
10/20/11
3 /4
HK
MLO
A
A
CON300
AXK6S100
CON301
AXK6S100
J300
J200
C300
VBATT
VRMO_LDO
VCC_2V8
GND
VSIM
ARM_TDO
ARM_TDI
ARM_TMS
ARM_TCK
ARM_RTCK
ARM_NTRST
TX_CTRL
BUZZ_OUT
ON/OFF_REQ
VBAT_RDY
RESET
SIM_DATA
SIM_RST
SIM_CLK
SIM_PRES
AUX_ADC0
AUX_ADC1
GPIO16/KEYIN2
HSET_OUTN
HSET_OUTP
INTMIC_P
INTMIC_N
EAR_OUTP
EAR_OUTN
GPIO38/DBEN32
GPIO1
SSI_CLK
GPIO49/SSI_OUT/SCL
GPIO51/SSI_SEL0
GPIO50/SSI_DATA
GPIO53/SSI_SEL2/SDA
GPIO49/SSI_OUT
GPIO44/SCL
UART0_TXD
UART0_RXD
PCM_CLK
PCM_DATA_OUT
PCM_DATA_IN
PCM_SYNC
GPIO52/DBEN34
GPIO39/DBEN33
32K_CLK_OUT
WS_READY/DBEN00
26M_CLKOUT
TEST
PWM1
PWM0
GPIO12/KEYIO1
UART1_RI
UART1_DCD
UART1_DTR
UART1_CTS
UART1_TXD
UART1_DSR
UART1_RXD

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WIRELESS