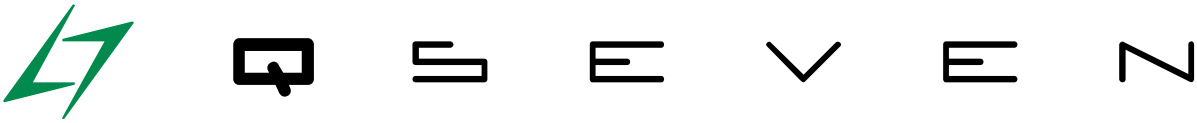
Qseven® Specification

Errata Sheet for Version 2.0,
dated September 20, 2012



Version E2.0-001, July 02, 2013

Note

Please ensure to follow all available Errata Sheets of the current Version of your Specification or Design Guide

Erratum 001 - New pin assignment for pin 154

applies to Qseven Specification Version.2.0 dated September 20, 2012

Motivation

Different Chip set Vendors feature different implementations of the Graphics, e.g. Display port (DP) is currently not supported on ARM Systems. With the change from Qseven Spec 1.2 to 2.0 pin 154 was changed from Display Port Hot Plug Detect (DP_HPD#) to reserved.

Change Overview

1. Set back to old Status DP_HPD# for use in future releases as HDMI Detect Pin to support HDMI/DP++ adapters on releases beyond Qseven Spec 2.0

Remarks

There might be compatibility issues between V1.x and V2.x

Please note updated Table 3-1 in appendix A after Erratum 002

Erratum 002 - Changes to support USB-OTG

applies to Qseven Specification Version.2.00 dated September 20, 2012

Motivation

The existing Qseven specification 2.0 does not fully implement USB-OTG (USB On-The-Go). The following changes will add full OTG capability to the Rev 2.0 specification. Furthermore the description of the USB_ID pin has been corrected. It is (and should have been) defined as a resistance to ground, i.e. an analog pin which needs to be directly connected to external sensing circuitry and not as formerly described as a 3.3V CMOS signal level (this could damage module components!).

The changes are described in the following sections

Change Overview

1. Introduction of a new signal on the Qseven connector for Power enable (USB_DRIVE_VBUS (pin 56)
2. Redefinition of the USB_CC signal to USB_VBUS (pin 91)
3. Update pin technology of the USB_ID signal from 3.3V CMOS Open Drain to Analog

Remarks

Further changes/additions might be necessary depending on the relevant chipsets.

Please refer to the appropriate USB-OTG documentation from your module vendor and check for compatibility with your 1.0/1.2 implementations.

Please note updated tables 3-7 and 3-1 in the appendices A and B

Erratum 003 - Changes in HD Audio / AC97 Signal description

applies to Qseven Specification Version.2.00 dated September 20, 2012

Motivation

There are Errors in the current description of pins/signals of the HD Audio interface which need to be corrected.

The changes are described in the following sections

Change Overview

1. Change Signal flow direction on pin 59 (HDA_SYNC / AC97_SYNC / I2S_WS) from O (Output) to I/O (Input/Output bidirectional) for I2S Signal only.
2. Change Signal name signal on the Qseven connector for pin 63 from
   HDA_BITCLK / I2S_CLK to
   HDA_BCLK / AC97_BCLK / I2S_CLK
3. Change Signal flow direction on this pin 63 from
   O (Output) to I/O (Input/Output bidirectional) for I2S Signal only.
4. Change Signal description on this pin 63 from
   “HD Audio/AC97 24MHz Serial Bit Clock
   Multiplexed with I2S Serial data Clock” to
   “HD Audio Serial Bit Clock.
   AC97 Serial Bit Clock.
   Multiplexed with I2S Serial data Clock”
5. Add AC97 Signal name instances for pins 59, 61, 65, 67
6. Change name of Chapter 3.1.7 from
   High Definition Audio Signals/AC'97 to
   High Definition Audio Signals/AC'97/I²S
7. Change name of Table 3-9 from
   Signal Definition HDA/AC'97 to
   Signal Definition HDA/AC'97/I²S
8. Add missing AC97 instances to table 3-9

Remarks

Depending on setup pins 59to 67 (odd numbers) can be used for
HD Audio (HDA), AC97 or I²S signals.

There is no specific Frequency required for the Bit clock. (3)

Please note updated tables 3-9 and 3-1 in the appendices B and C

Appendix A to Errata 001 and 002- Changes in Signal definitions

Table 3-7 (partial) old Signal Definition USB

Signal	Description	I/O Type	I_{OL} /I_{IL}	I/O
USB_ID	USB ID pin. Configures the mode of the USB Port 1. If the signal is detected as being 'high active' the BIOS will automatically configure USB Port 1 as USB Client and enable USB Client support. This signal should be driven as OC signal by external circuitry.	CMOS 3.3V Suspend		I
USB_CC	USB Client Connect pin. If USB Port 1 is configured for client mode then an externally connected USB host should set this signal to high-active in order to properly make the connection with the module's internal USB client controller. If the external USB host is disconnected, this signal should be set to low-active in order to inform the USB client controller that the external host has been disconnected. A level shifter/protection circuitry should be implemented on the carrier board for this signal.	CMOS 3.3V Suspend		I

to be replaced by Table **3-7 (partial) new Signal Definition USB**

Signal	Description	I/O Type	I_{OL} /I_{IL}	I/O
USB_ID (pin #92)	USB ID pin. Configures the mode of the USB Port 1. Please refer to the Qseven Design guide and to your module vendor's documentation for further details.	Analog		O
USB_VBUS (former USB_CC, pin #91)	USB VBUS pin. • 5V tolerant • VBUS resistance has to be placed on the module • VBUS capacitance has to be placed on the carrier board	Passive Analog, 5.0V		I
USB_DRIVE_VBUS (new, former RSV pin #56,)	USB Power enable pin for USB Port 1 Enables the Power for the USB-OTG port on the carrier board.	CMOS 3.3V		O

Appendix B to Erratum 003- Changes in Audio Signal definitions

Table 3-9 old

Table 3-9 Signal Definition HDA/AC97

Signal	Description	I/O Type	I_{OL}/I_{IL}	I/O
HDA_RST# I2S_RST#	HD Audio/AC'97 Codec Reset. Multiplexed with I2S Codec Reset.	CMOS 3.3V		O
HDA_SYNC I2S_WS	Serial Bus Synchronization. Multiplexed with I2S Word Select from Codec.	CMOS 3.3V		O
HDA_BCLK I2S_CLK	HD Audio/AC'97 **24 MHz** Serial Bit Clock from Codec. Multiplexed with I2S Serial Data Clock from Codec.	CMOS 3.3V		O
HDA_SDO I2S_SDO	HD Audio/AC'97 Serial Data Output to Codec. Multiplexed with I2S Serial Data Output from Codec.	CMOS 3.3V		O
HDA_SDI I2S_SDI	HD Audio/AC'97 Serial Data Input from Codec. Multiplexed with I2S Serial Data Input from Codec.	CMOS 3.3V		I

to be replaced by Table **3-9** **new**

Table 3-9 Signal Definition HDA/AC97/I²S

Signal	Description	I/O Type	I_{OL}/I_{IL}	I/O
HDA_RST# **AC97_RST#** I2S_RST#	HD Audio Codec Reset. **AC'97 Codec Reset.** Multiplexed with I2S Codec Reset.	CMOS 3.3V		O **O** **O**
HDA_SYNC **AC97_SYNC** I2S_WS	Serial Bus Synchronization. **Serial Bus Synchronization.** Multiplexed with I2S Word Select.	CMOS 3.3V		O **O** **I/O**
HDA_BCLK **AC97_BCLK** I2S_CLK	HD Audio Serial Bit Clock. **AC'97 Serial Bit Clock.** Multiplexed with I2S Serial data Clock.	CMOS 3.3V		O **O** **I/O**
HDA_SDO **AC97_SDO** I2S_SDO	HD Audio Serial Data Output. AC'97 Serial Data Output. Multiplexed with I2S Serial Data Output.	CMOS 3.3V		O O O
HDA_SDI **AC97_SDI** I2S_SDI	HD Audio Serial Data Input. **AC'97 Serial Data Input.** Multiplexed with I2S Serial Data Input.	CMOS 3.3V		I **I** **I**

Appendix C to Errata 001, 002 and 003- Changes in Pinout Description

Table 3-1 Connector Pinout Description

Old Description to be replaced by New Description

Pin	Signal	Pin	Signal
1	GND	2	GND
3	GBE_MDI3-	4	GBE_MDI2-
5	GBE_MDI3+	6	GBE_MDI2+
7	GBE_LINK100#	8	GBE_LINK1000#
9	GBE_MDI1-	10	GBE_MDI0-
11	GBE_MDI1+	12	GBE_MDI0+
13	GBE_LINK#	14	GBE_ACT#
15	GBE_CTREF	16	SUS_S5#
17	WAKE#	18	SUS_S3#
19	SUS_STAT#	20	PWRBTN#
21	SLP_BTN#	22	LID_BTN#
23	GND	24	GND
	KEY		KEY
25	GND	26	PWGIN
27	BATLOW#	28	RSTBTN#
29	SATA0_TX+	30	SATA1_TX+
31	SATA0_TX-	32	SATA1_TX-
33	SATA_ACT#	34	GND
35	SATA0_RX+	36	SATA1_RX+
37	SATA0_RX-	38	SATA1_RX-
39	GND	40	GND
41	BIOS_DISABLE# / BOOT_ALT#	42	SDIO_CLK#
43	SDIO_CD#	44	SDIO_LED
45	SDIO_CMD	46	SDIO_WP
47	SDIO_PWR#	48	SDIO_DAT1
49	SDIO_DAT0	50	SDIO_DAT3
51	SDIO_DAT2	52	SDIO_DAT5
53	SDIO_DAT4	54	SDIO_DAT7
55	SDIO_DAT6	56	**RSVD**
57	GND	58	GND
59	**HDA_SYNC / I2S_WS**	60	SMB_CLK / GP1_I2C_CLK
61	**HDA_RST# / I2S_RST#**	62	SMB_DAT / GP1_I2C_DAT
63	**HDA_BITCLK / I2S_CLK**	64	SMB_ALERT#
65	**HDA_SDI / I2S_SDI**	66	GP0_I2C_CLK
67	**HDA_SDO / I2S_SDO**	68	GP0_I2C_DAT
69	THRM#	70	WDTRIG#
71	THRMTRIP#	72	WDOUT
73	GND	74	GND

Pin	Signal	Pin	Signal
1	GND	2	GND
3	GBE_MDI3-	4	GBE_MDI2-
5	GBE_MDI3+	6	GBE_MDI2+
7	GBE_LINK100#	8	GBE_LINK1000#
9	GBE_MDI1-	10	GBE_MDI0-
11	GBE_MDI1+	12	GBE_MDI0+
13	GBE_LINK#	14	GBE_ACT#
15	GBE_CTREF	16	SUS_S5#
17	WAKE#	18	SUS_S3#
19	SUS_STAT#	20	PWRBTN#
21	SLP_BTN#	22	LID_BTN#
23	GND	24	GND
	KEY		KEY
25	GND	26	PWGIN
27	BATLOW#	28	RSTBTN#
29	SATA0_TX+	30	SATA1_TX+
31	SATA0_TX-	32	SATA1_TX-
33	SATA_ACT#	34	GND
35	SATA0_RX+	36	SATA1_RX+
37	SATA0_RX-	38	SATA1_RX-
39	GND	40	GND
41	BIOS_DISABLE# / BOOT_ALT#	42	SDIO_CLK#
43	SDIO_CD#	44	SDIO_LED
45	SDIO_CMD	46	SDIO_WP
47	SDIO_PWR#	48	SDIO_DAT1
49	SDIO_DAT0	50	SDIO_DAT3
51	SDIO_DAT2	52	SDIO_DAT5
53	SDIO_DAT4	54	SDIO_DAT7
55	SDIO_DAT6	56	**USB_DRIVE_VBUS**
57	GND	58	GND
59	**HDA_SYNC / AC97_SYNC / I2S_WS**	60	SMB_CLK / GP1_I2C_CLK
61	**HDA_RST# / AC97_RST# / I2S_RST#**	62	SMB_DAT / GP1_I2C_DAT
63	**HDA_BCLK / AC97_BCLK / I2S_CLK**	64	SMB_ALERT#
65	**HDA_SDI / AC97_SDI / I2S_SDI**	66	GP0_I2C_CLK
67	**HDA_SDO / AC97_SDO / I2S_SDO**	68	GP0_I2C_DAT
69	THRM#	70	WDTRIG#
71	THRMTRIP#	72	WDOUT
73	GND	74	GND

Pin	Signal	Pin	Signal
75	USB_P7- / USB_SSTX0-	76	USB_P6- / USB_SSRX0-
77	USB_P7+ / USB_SSTX0+	78	USB_P6+ / USB_SSRX0+
79	USB_6_7_OC#	80	USB_4_5_OC#
81	USB_P5- / USB_SSTX1-	82	USB_P4- / USB_SSRX1-
83	USB_P5+ / USB_SSTX1+	84	USB_P4+ / USB_SSRX1+
85	USB_2_3_OC#	86	USB_0_1_OC#
87	USB_P3-	88	USB_P2-
89	USB_P3+	90	USB_P2+
91	**USB_CC**	92	USB_ID
93	USB_P1-	94	USB_P0-
95	USB_P1+	96	USB_P0+
97	GND	98	GND
99	eDP0_TX0+ / LVDS_A0+	100	eDP1_TX0+ / LVDS_B0+
101	eDP0_TX0- / LVDS_A0-	102	eDP1_TX0- / LVDS_B0-
103	eDP0_TX1+ / LVDS_A1+	104	eDP1_TX1+ / LVDS_B1+
105	eDP0_TX1- / LVDS_A1-	106	eDP1_TX1- / LVDS_B1-
107	eDP0_TX2+ / LVDS_A2+	108	eDP1_TX2+ / LVDS_B2+
109	eDP0_TX2- / LVDS_A2-	110	eDP1_TX2- / LVDS_B2-
111	LVDS_PPEN	112	LVDS_BLEN
113	eDP0_TX3+ / LVDS_A3+	114	eDP1_TX3+ / LVDS_B3+
115	eDP0_TX3- / LVDS_A3-	116	eDP1_TX3- / LVDS_B3-
117	GND	118	GND
119	eDP0_AUX+ / LVDS_A_CLK+	120	eDP1_AUX+ / LVDS_B_CLK+
121	eDP0_AUX- / LVDS_A_CLK-	122	eDP1_AUX- / LVDS_B_CLK-
123	LVDS_BLT_CTRL /GP_PWM_OUT0	124	GP_1-Wire_Bus
125	GP2_I2C_DAT / LVDS_DID_DAT	126	eDP0_HPD# / LVDS_BLC_DAT
127	GP2_I2C_CLK / LVDS_DID_CLK	128	eDP1_HPD# / LVDS_BLC_CLK
129	CAN0_TX	130	CAN0_RX
131	DP_LANE3+ / TMDS_CLK+	132	RSVD (Differential Pair)
133	DP_LANE3- / TMDS_CLK-	134	RSVD (Differential Pair)
135	GND	136	GND
137	DP_LANE1+ / TMDS_LANE1+	138	DP_AUX+
139	DP_LANE1- / TMDS_LANE1-	140	DP_AUX-
141	GND	142	GND
143	DP_LANE2+ / TMDS_LANE0+	144	RSVD (Differential Pair)
145	DP_LANE2- / TMDS_LANE0-	146	RSVD (Differential Pair)
147	GND	148	GND
149	DP_LANE0+ /	150	HDMI_CTRL_DAT

Pin	Signal	Pin	Signal
75	USB_P7- / USB_SSTX0-	76	USB_P6- / USB_SSRX0-
77	USB_P7+ / USB_SSTX0+	78	USB_P6+ / USB_SSRX0+
79	USB_6_7_OC#	80	USB_4_5_OC#
81	USB_P5- / USB_SSTX1-	82	USB_P4- / USB_SSRX1-
83	USB_P5+ / USB_SSTX1+	84	USB_P4+ / USB_SSRX1+
85	USB_2_3_OC#	86	USB_0_1_OC#
87	USB_P3-	88	USB_P2-
89	USB_P3+	90	USB_P2+
91	**USB_VBUS**	92	USB_ID
93	USB_P1-	94	USB_P0-
95	USB_P1+	96	USB_P0+
97	GND	98	GND
99	eDP0_TX0+ / LVDS_A0+	100	eDP1_TX0+ / LVDS_B0+
101	eDP0_TX0- / LVDS_A0-	102	eDP1_TX0- / LVDS_B0-
103	eDP0_TX1+ / LVDS_A1+	104	eDP1_TX1+ / LVDS_B1+
105	eDP0_TX1- / LVDS_A1-	106	eDP1_TX1- / LVDS_B1-
107	eDP0_TX2+ / LVDS_A2+	108	eDP1_TX2+ / LVDS_B2+
109	eDP0_TX2- / LVDS_A2-	110	eDP1_TX2- / LVDS_B2-
111	LVDS_PPEN	112	LVDS_BLEN
113	eDP0_TX3+ / LVDS_A3+	114	eDP1_TX3+ / LVDS_B3+
115	eDP0_TX3- / LVDS_A3-	116	eDP1_TX3- / LVDS_B3-
117	GND	118	GND
119	eDP0_AUX+ / LVDS_A_CLK+	120	eDP1_AUX+ / LVDS_B_CLK+
121	eDP0_AUX- / LVDS_A_CLK-	122	eDP1_AUX- / LVDS_B_CLK-
123	LVDS_BLT_CTRL /GP_PWM_OUT0	124	GP_1-Wire_Bus
125	GP2_I2C_DAT / LVDS_DID_DAT	126	eDP0_HPD# / LVDS_BLC_DAT
127	GP2_I2C_CLK / LVDS_DID_CLK	128	eDP1_HPD# / LVDS_BLC_CLK
129	CAN0_TX	130	CAN0_RX
131	DP_LANE3+ / TMDS_CLK+	132	RSVD (Differential Pair)
133	DP_LANE3- / TMDS_CLK-	134	RSVD (Differential Pair)
135	GND	136	GND
137	DP_LANE1+ / TMDS_LANE1+	138	DP_AUX+
139	DP_LANE1- / TMDS_LANE1-	140	DP_AUX-
141	GND	142	GND
143	DP_LANE2+ / TMDS_LANE0+	144	RSVD (Differential Pair)
145	DP_LANE2- / TMDS_LANE0-	146	RSVD (Differential Pair)
147	GND	148	GND
149	DP_LANE0+ /	150	HDMI_CTRL_DAT

Pin	Signal	Pin	Signal
	TMDS_LANE2+		
151	DP_LANE0- / TMDS_LANE2-	152	HDMI_CTRL_CLK
153	DP_HDMI_HPD#	154	**RSVD**
155	PCIE_CLK_REF+	156	PCIE_WAKE#
157	PCIE_CLK_REF-	158	PCIE_RST#
159	GND	160	GND
161	PCIE3_TX+	162	PCIE3_RX+
163	PCIE3_TX-	164	PCIE3_RX-
165	GND	166	GND
167	PCIE2_TX+	168	PCIE2_RX+
169	PCIE2_TX-	170	PCIE2_RX-
171	UART0_TX	172	UART0_RTS#
173	PCIE1_TX+	174	PCIE1_RX+
175	PCIE1_TX-	176	PCIE1_RX-
177	UART0_RX	178	UART0_CTS#
179	PCIE0_TX+	180	PCIE0_RX+
181	PCIE0_TX-	182	PCIE0_RX-
183	GND	184	GND
185	LPC_AD0 / GPIO0	186	LPC_AD1 / GPIO1
187	LPC_AD2 / GPIO2	188	LPC_AD3 / GPIO3
189	LPC_CLK / GPIO4	190	LPC_FRAME# / GPIO5
191	SERIRQ / GPIO6	192	LPC_LDRQ# / GPIO7
193	VCC_RTC	194	SPKR / GP_PWM_OUT2
195	FAN_TACHOIN / GP_TIMER_IN	196	FAN_PWMOUT / GP_PWM_OUT1
197	GND	198	GND
199	SPI_MOSI	200	SPI_CS0#
201	SPI_MISO	202	SPI_CS1#
203	SPI_SCK	204	MFG_NC4
205	VCC_5V_SB	206	VCC_5V_SB
207	MFG_NC0	208	MFG_NC2
209	MFG_NC1	210	MFG_NC3
211	VCC	212	VCC
213	VCC	214	VCC
215	VCC	216	VCC
217	VCC	218	VCC
219	VCC	220	VCC
221	VCC	222	VCC
223	VCC	224	VCC
225	VCC	226	VCC
227	VCC	228	VCC
229	VCC	230	VCC

Pin	Signal	Pin	Signal
	TMDS_LANE2+		
151	DP_LANE0- / TMDS_LANE2-	152	HDMI_CTRL_CLK
153	DP_HDMI_HPD#	154	**DP_HPD#**
155	PCIE_CLK_REF+	156	PCIE_WAKE#
157	PCIE_CLK_REF-	158	PCIE_RST#
159	GND	160	GND
161	PCIE3_TX+	162	PCIE3_RX+
163	PCIE3_TX-	164	PCIE3_RX-
165	GND	166	GND
167	PCIE2_TX+	168	PCIE2_RX+
169	PCIE2_TX-	170	PCIE2_RX-
171	UART0_TX	172	UART0_RTS#
173	PCIE1_TX+	174	PCIE1_RX+
175	PCIE1_TX-	176	PCIE1_RX-
177	UART0_RX	178	UART0_CTS#
179	PCIE0_TX+	180	PCIE0_RX+
181	PCIE0_TX-	182	PCIE0_RX-
183	GND	184	GND
185	LPC_AD0 / GPIO0	186	LPC_AD1 / GPIO1
187	LPC_AD2 / GPIO2	188	LPC_AD3 / GPIO3
189	LPC_CLK / GPIO4	190	LPC_FRAME# / GPIO5
191	SERIRQ / GPIO6	192	LPC_LDRQ# / GPIO7
193	VCC_RTC	194	SPKR / GP_PWM_OUT2
195	FAN_TACHOIN / GP_TIMER_IN	196	FAN_PWMOUT / GP_PWM_OUT1
197	GND	198	GND
199	SPI_MOSI	200	SPI_CS0#
201	SPI_MISO	202	SPI_CS1#
203	SPI_SCK	204	MFG_NC4
205	VCC_5V_SB	206	VCC_5V_SB
207	MFG_NC0	208	MFG_NC2
209	MFG_NC1	210	MFG_NC3
211	VCC	212	VCC
213	VCC	214	VCC
215	VCC	216	VCC
217	VCC	218	VCC
219	VCC	220	VCC
221	VCC	222	VCC
223	VCC	224	VCC
225	VCC	226	VCC
227	VCC	228	VCC
229	VCC	230	VCC

