QBlissA9

Qseven™ Module with ARM Cortex™ A9 Single-/ Dual-/ Quad-Core

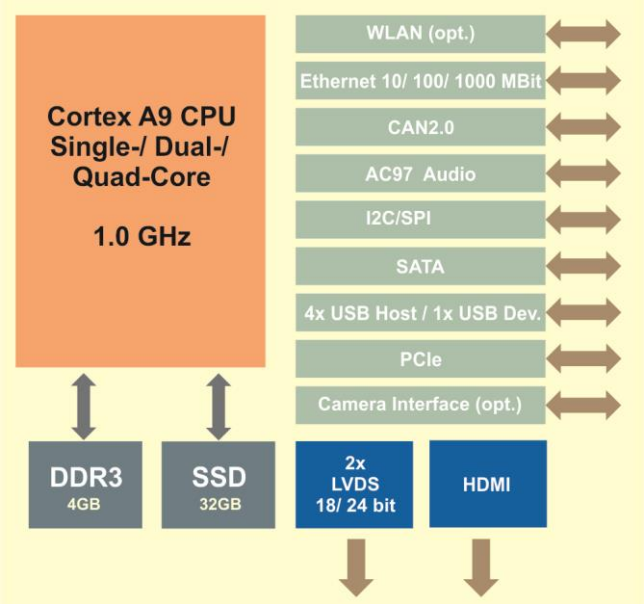
Characteristics

- ARM Cortex™-A9 Single-/ Dual-/ Quad-Core with 1.0GHz
- up to 32GB Flash, up to 4GB DDR3-RAM
- 1x (2x) Channel TFT LVDS LCD-Controller
- HDMI Interface (V1.4)
- Ethernet 10/ 100/ 1000 MBit
- 1x USB2.0 Device, 4x USB2.0 Host
- 1x CAN2.0, 2x I^2C, 1x SPI
- 1x SD-Card (via SDIO)
- AC97 (Audio + Touch Interface)
- 1x PCIexpress (2.0)
- 1x SATA
- WLAN on board (optional)
- Digital Camera Interface (optional)
- Windows EC 7/ Linux
- 5V Design

Description

Since the Qseven™ form factor was introduced; many manufacturers of boards and software have adopted it. The combination of Qseven™ and RISC gains more and more importance. The reason is the compatibility of the offered boards, as well as the small form factor (70x70mm) with an inexpensive plug connector. QBlissA9 runs on Freescale i.MX 6 Quad-Core ARM Cortex A9 CPU. Important data of this high-performance CPU are 3D graphic (100MTri/s, 1000 Mpx/s), Hardware Decoder/ Encoder with a resolution up to 1080p, H.264 HP, HDMI v.1.4, ARMv7™, NEON, VFPv3, SATA-II interface, as well as Gigabit Ethernet. Another characteristic is the long availability of the CPU of at least 15 years (Freescale Product Longevity Program). With its 2-channel LVDS (up to WUXGA - 1920x1200) and DVI (up to HD1080), QBlissA9 is perfectly suited for multimedia applications. The module offers an unprecedented combination of high-end computer graphic and simultaneously low power loss. The i.MX 6 CPU is also available with Single- /Dual- and Quad-Core in the same body. Therefore, further versions of QBlissA9 in different power classes are disposable.

Block Diagram



On-Board Operating System

Windows® Embedded Partner

A customized WEC 7 (Silverlight, IE, Mediaplayer) with Compact Framework 3.5, creates the base of your development. i.MX 6 provides hardware units, unloading the CPU significantly, having a positive effect on fluent graphic display and power consumption.

F&S' Linux BSP (3.0.35, uboot, BSP, Buildroot, QT, GStreamer) already comes with a customized kernel and all interface drivers, including Source. It also has a Cross Compiler Toolchain to develop own bootloaders, kernels or further software.

Starter Kit

The QBlissA9 starter kit contains a base board in PicoITX form factor, with standard connectors and plug connectors for the offered interfaces. Furthermore, a cable kit and an access code to download documentation, current software, drivers and example programs, are included. Choose your QBlissA9 from the available versions. We also offer suiting display kits and adapters. Additionally, we offer a 4-hour workshop. The goal of the workshop is, to learn how to handle the QBlissA9 starter kit, to get introduced to the development area and to complete it with a running system (QBlissA9, display and touch panel). A support forum with 2000+ registered customers is always online to answer any upcoming questions.

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Connector Assignment

Qseven goldfinger connector

1	GND	24	GND	47	SDIO_PWR#	70	GPO (WDTRIG#)	93	USB_P1- (client port)	116	LVDS_B3-	139	TMDS_LANE1-
2	GND	25	GND	48	SDIO_DAT1	71	n.u.	94	USB_P0-	117	GND	140	NC
3	MDI3-	26	PWGIN	49	SDIO_DAT0	72	GPI (WDOUT)	95	USB_P1+ (client port)	118	GND	141	GND
4	MDI2-	27	GPI (BATLOW#)	50	SDIO_DAT3	73	GND	96	USB_P0+	119	LVDS_A_CLK+	142	GND
5	MDI3+	28	RSTBTN#	51	SDIO_DAT2	74	GND	97	GND	120	LVDS_B_CLK+	143	TMDS_LANE0+
6	MDI2+	29	SATA0_TX+	52	SDIO_DAT5	75	n.u.	98	GND	121	LVDS_A_CLK-	144	NC
7	LINK100#	30	n.u.	53	SDIO_DAT4	76	n.u.	99	LVDS_A0+	122	LVDS_B_CLK-	145	TMDS_LANE0-
8	LINK1000#	31	SATA0_TX-	54	SDIO_DAT7	77	n.u.	100	LVDS_B0+	123	LVDS_BLT_CTRL	146	NC
9	MDI1-	32	n.u.	55	SDIO_DAT6	78	n.u.	101	LVDS_A0-	124	RSVD	147	GND
10	MDI0-	33	GPO (SATA_ACT#)	56	RSVD	79	n.u.	102	LVDS_B0-	125	LVDS_DID_DAT	148	GND
11	MDI1+	34	GND	57	GND	80	n.u.	103	LVDS_A1+	126	LVDS_BLC_DAT	149	TMDS_LANE2+
12	MDI0+	35	SATA0_RX+	58	GND	81	n.u.	104	LVDS_B1+	127	LVDS_DID_CLK	150	HDMI_CTRL_DAT
13	LINK#	36	n.u.	59	AC97_SYNC)*2	82	USB_P4-	105	LVDS_A1-	128	LVDS_BLC_CLK	151	TMDS_LANE2-
14	ACT#	37	SATA0_RX-	60	SMB_CLK	83	n.u.	106	LVDS_B1-	129	CAN0_TX	152	HDMI_CTRL_CLK
15	CTREF (open)	38	n.u.	61	AC97_RST#)*2	84	USB_P4+	107	LVDS_A2+	130	CAN0_RX	153	HDMI_HPD#
16	PMIC ON (SUS_S5#)	39	GND	62	SMB_DAT	85	USB_2_3_OC#	108	LVDS_B2+	131	TMDS_CLK+	154	NC
17	GPI (WAKE#)	40	GND	63	AC97_BITCLK)*2	86	USB_0_1_OC#	109	LVDS_A2-	132	NC	155	PCIE_CLK_REF+
18	PMIC STBY (SUS_S3#)	41	BIOS_DIS#/BOOT_ALT#	64	SMB_ALERT#	87	USB_P3-	110	LVDS_B2-	133	TMDS_CLK-	156	n.u.
19	GPO (SUS_STAT#)	42	SDIO_CLK#	65	AC97_SDI)*2	88	USB_P2-	111	LVDS_PPEN	134	NC	157	PCIE_CLK_REF-
20	PWRBTN#	43	SDIO_CD#	66	I2C_CLK	89	USB_P3+	112	LVDS_BLEN	135	GND	158	RSTOUT#
21	SLP_BTN#	44	SDIO_LED	67	AC97_SDO)*2	90	USB_P2+	113	LVDS_A3+	136	GND	159	GND
22	LID_BTN#	45	SDIO_CMD	68	I2C_DAT	91	USB_HOST_PRES#	114	LVDS_B3+	137	TMDS_LANE1+	160	GND
23	GND	46	SDIO_WP	69	GPI (THRM#)	92	USB_HC_SEL	115	LVDS_A3-	138	NC	161	n.u. (RX1))*3

Connector Assignment

Qseven goldfinger connector

162	n.u. (CTS1))*3	185	n.u. (RX0))*3	208	MFG_NC2
163	n.u. (TX1))*3	186	n.u. (TX0))*3	209	TX3/ MFG_NC1
164	n.u. (RTS1))*3	187	n.u. (CTS0))*3	210	RX3/ MFG_NC3
165	GND	188	n.u. (RTS0))*3	211	VCC
166	GND	189	n.u.	212	VCC
167	n.u.	190	n.u.	213	VCC
168	n.u.	191	n.u.	214	VCC
169	n.u.	192	n.u.	215	VCC
170	n.u.	193	VCC_RTC	216	VCC
171	n.u.	194	GPO (SPKR)	217	VCC
172	n.u.	195	FAN_TACHOIN	218	VCC
173	n.u.	196	GPO (FAN_PWMOUT)	219	VCC
174	n.u.	197	GND	220	VCC
175	n.u.	198	GND	221	VCC
176	n.u.	199	SPI_MOSI	222	VCC
177	n.u.	200	SPI_CS0	223	VCC
178	n.u.	201	SPI_MISO	224	VCC
179	PCIE0_TX+	202	SPI_CS1	225	VCC
180	PCIE0_RX+	203	SPI_SCK	226	VCC
181	PCIE0_TX-	204	MFG_NC4	227	VCC
182	PCIE0_RX-	205	VCC_5V_SB	228	VCC
183	GND	206	VCC_5V_SB	229	VCC
184	GND	207	MFG_NC0	230	VCC

comments:
)*2AC97 instead HDA channel, HDA codec will not work on this pins, but will not be destroyed. Combi Layout possible, please look the AC97 section
)*3not spec conform version with 2 COM ports possible on this pins
)Interface and signal description

Technical Data

Power Supply:	+5VDC/±5%
Power Consumption	tbd
Interfaces:	1x Ethernet 10/100/1000 MBit 1x Serial (2x optional) 4x USB2.0 Host 1x USB2.0 Device 1x CAN2.0 2x I^2C 1x SPI 1x SD-Card 1x AC97 digital audio 1x SDIO (SD-Card) 1x SATA PCIe (2.0) WLAN (optional) 1x camera interface -YUV4:2:2 CCIR-656 (optional)
TFT LCD Interface:	2x 18/ 24bit LVDS HDMI (V1.4)
RAM:	up to 4GB DDR3-RAM
Program Memory:	up to 32 GB NAND Flash
Processor:	ARM Cortex™-A9 Single-/ Dual-/ Quad-Core with up to 1.2 GHz
Temperature Range:	0°C - +70°C, (-20°C - +85°C, -20°C - +85°C optional)
Dimension:	70mm x 70mm x 11mm (l x b x d)
Weight:	22g

Standard Versions/ Order Notations

QBlissA9-V1-LIN

Single-Core-1GHz, 512MB RAM, 128MB Flash, -25°C - +85°C, Linux

QBlissA9-V1-WEC7

Single-Core, 512MB RAM, 128MB Flash, -25°C - +85°C, WEC7 C7E license

QBlissA9-V2-LIN

Quad-Core-1GHz, 1GB RAM, 128MB Flash, WLAN/ Bluetooth, 0°C - +85°C, Linux

QBlissA9-V2-WEC7

Quad-Core-1GHz, 1GB RAM, 128MB Flash, WLAN/ Bluetooth, 0°C - +85°C, WEC7 CE7 license

QBlissA9-SKIT-LIN/ WEC7

QBlissA9-V2-LIN or WEC7, PicoITX base board, cable kit, access to documentation and software

Attention:
Minimum Oder Quantity for Special Versions: 500 pieces!

Order Key

QBlissA9C4-1D1FW-WEC7

CPU	RAM DDR-RAM	Flash	WLAN	Temp.	OS
C4 Quad-Core	blank 512 MByte	blank 128 MByte	blank no WLAN	blank 0°C - +70°C	LIN Embedded Linux
C2 Dual-Core	1D 1 GByte	1F 1 GByte	W WLAN	I -20°C - +85°C	WEC7 WEC7
C1 Single-Core	4D 4 GByte	tbd tbd		E -40°C - +85°C	

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