

Itron[®] Riva Dev Mini Board

Provides radio frequency communications and a small form factor for prototyping on the OpenWay Riva Platform

The Itron Riva Dev Mini delivers access to the Itron OpenWay Riva Network, but with a smaller form factor than our Dev Edge board. The Dev Mini has a 900 Mhz 802.15.4g radio to enable RF communication on the Itron OpenWay Riva Network. With adaptive radio frequency communications, the Dev Mini enables Smart Networks that drive efficiency, conservation, and growth, making possible Smart City applications such as:

- » Smart Parking
- » Smart Lighting
- » Smart Water
- » Smart Services



The Mini runs in a Linux-based software environment, with a special Linux-distribution (MUSE) created by Itron. The board includes a single mini-USB port and a single 40-pin I/O expansion connector. The Itron Riva Dev Mini board is software compatible with the Itron Riva Dev Edge board. However, due to the smaller footprint, our Itron Riva Dev Mini comes without the on-board Ethernet and without the additional 4GB of eMMC flash memory.

Applications developed for Mini are software compatible with other Itron products, including Itron Riva Smart NIC, Cisco Connected Grid Router Adaptive Communications Module (CAM), and Itron OpenWay Riva Electric Meters.

SPECIFICATIONS

Form Factor	Mini
Dimensions (HxWxD)	0.375x2.125x2.25
RF Protocol	IEEE 802.15.4g
RF Operational Bands	870 MHz and the 920 MHz
RF Output Power	
RF Modulations	FSK, OFDM (up to 600kbps)
Peak Power Consumption	6 Watts
Additional Specs	
Input voltage	4.75 VDC and 5.25
Memory	A8 Microprocessor ARM® Cortex™-A8 32-Bit RISC Microprocessor 32KB L1 Cache 256KB L2 Cache Internal RAM Dedicated to boot and security 64KB Dedicated on-chip RAM Internal RAM General Purpose 64KB on chip RAM Internal ROM 176K On-Chip boot ROM

EXPANSION CONNECTOR PINOUT

J4 Pin	LGA Pin	Ball ZCZ	Rail	LGA Name	MODES
1				+5.0V	
2				+5.0V	
3	9	B12	3.3	GPI103_18 Test with: ./gpio3_18.sh	(0) MCASP0_ACLKR (1) EQEPOA_IN (2) MCASP0_AXR2 (3) MCASP1_ACLKX
4		T18		USB1_VBUS	
5	11	C13	3.3	GPIO3_19 Test with: ./gpio3_19.sh	(0) MCASP0_FSR (1) EQEPOB_IN (2) MCASP0_AXR3 (3) MCASP1_FSX (4) EMU2 (5) PR1_PRU0_PRU_R30_5 (6) PR1_PRU0_PRU_R31_5 (7) GPIO3_19
6		P17		USB1_ID	
7	10	D13	V6	GPIO3_20 Test with: ./gpio3_20.sh	(0) MCASP0_AXR1 (1) EQEPO_INDEX (2) (3) MCASP1_AXR0 (4) EMU3 (5) PR1_PRU0_PRU_R30_6 (6) PR1_PRU0_PRU_R32_6 (7) GPIO3_20
8		F15		USB1_DRVVBUS	
9	130	D14	V6	USB1_DRVVBUS Test with: ./gpio3_20.sh	(0) XDMA_EVENT_INTR1 (1) (2) TCLKIN (3) CLKOUT2 (4) TIMER7 (5) PR1_PRU0_PRU_R31_16 (6) EMU3 (7) GPIO0_20

EXPANSION CONNECTOR PINOUT CONTINUED

J4 Pin	LGA Pin	Ball CZCZ	Rail	LGA Name	MODES
10		R18		USB1_DM	
11			1.8	AIN_0 Test with: ./ad0.sh and voltage input (Vin <1.8)	Note: 1.8 VDC MAX
12		R17		USB1_DP	
13			1.8	AIN_1 Test with: ./ad1.sh and voltage input (Vin <1.8)	Note: 1.8 VDC MAX
14			1.8	AIN_2 Test with: ./ad2.sh and voltage input (Vin <1.8)	Note: 1.8 VDC MAX
15	8	D17		I2C2_SCL Requires ~2.2k pullup to 3.3 VDC Test with i2cdetect. See test section later in this document.	(0) UART1_RTSN (1) TIMER5 (2) DCAN0_RX (3) I2C2_SCL (4) SPI1_CS1 (5) PR1_UART0_RTS_N (6) PR1_EDC_LATCH_1_IN (7) GPIO0_13
16			1.8	AIN_3 Test with: ./ad3.sh and voltage input (Vin <1.8)	Note: 1.8 VDC MAX
17	7	D18	3.3	I2C2_SDA Requires ~2.2k pullup to 3.3 VDC Test with i2cdetect. See test section later in this document.	(0) UART1_CTSN (1) TIMER6 (2) DCAN0_TX (3) I2C2_SDA (4) SPI1_CS0 (5) NA (6) NA (7) GPIO0_12
18				HV_CMP See Testing Section	Input from external power fail circuitry
19	32	A14	3.3	GPIO3_21 Test with: ./gpio3_21.sh	(0) MCASP0_AHCLKX (1) EQEPO_STROBE (2) MCASP0_AXR3 (3) MCASP1_AXR1 (4) EMU4 (5) PR1_PRU0_PRU_R30_7 (6) PR1_PRU0_PRU_R31_7 (7) GPIO3_21
20				EPF_IN* See Testing Section	
21	188	J17	3.3	GPIO3_4 Test with: ./gpio3_4.sh	(0) GMII1_RXDV (1) LCD_MEMORY_CLK (2) RGMII1_RCTL (3) UART5_TXD (4) MCASP1_ACLKX (5) MMC2_DAT0 (6) MCASP0_ACLKR (7) GPIO3_4
22	182	R14	3.3	GPIO1_20 Test with: ./gpio1_20.sh	(0) GPMC_A4 (1) GMII2_TXD1 (2) RGMII2_TD1 (3) RMII2_TXD1 (4) GPMC_A20 (5) PR1_MII1_TXD0 (6) EQEP1A_IN (7) GPIO1_20

EXPANSION CONNECTOR PINOUT CONTINUED

J4 Pin	LGA Pin	Ball ZCZ	Rail	LGA Name	MODES
23	116	B16	3.3	GPIO3_0 Test with: ./gpio3_0.sh	(0) GMII1_COL (1) RMII2_REFCLK (2) SPI1_SCLK (3) UART5_RXD (4) MCASP1_AXR2 (5) MMC2_DAT3 (6) MCASP0_ARX2 (7) GPIO3_0
24	152	T14	3.3	GPIO1_19 Test with: ./gpio1_19.sh	(0) GPMC_A3 (1) MII2_TXD2 (2) RGMII2_TD2 (3) MMC2_DAT2 (4) GPMC_A19 (5) EHRPWM1B_MUX1 (6) (7) GPIO1_19
25	145	A16	3.3	SPIO_CS0 Test with SPITest0.exe and Microchip SPI test board. See test section later in this document.	(0) SPIO_CS0 (1) MMC2_SDWP (2) I2C1_SCL (3) EHRPWM0_SYNCI (4) PR1_UART0_TXD (5) PR1_EDIO_DATA_IN1 (6) PR1_EDIO_DATA_OUT1 (7) GPIO0_5
26				BATTERY	RTC Battery
27	160	B17	3.3	SPIO_MISO Test with SPITest0.exe and Microchip SPI test board. See test section later in this document.	(0) SPIO_D0 (1) UART2_TXD (2) I2C2_SCL (3) EHRPWM0B (4) EMU3_MUX1 (5) (6) (7) GPIO0_3
28	61	C12	3.3	SPI1_CS0 Test with SPITest1.exe and Microchip SPI test board. See test section later in this document.	(0) MCASP0_AHCLKR (1) EHRPWM0_SYNCI (2) MCASP0_AXR2 (3) SPI1_CS0 (4) ECAP2_IN_PWM2_OUT (5) PR1_PRU0_PRU_R30_3 (6) PR1_PRU0_PRU_R31_3 (7) GPIO3_17
29	146	B16	3.3	SPIO_MOSI Test with SPITest0.exe and Microchip SPI test board. See test section later in this document.	(0) SPIO_D1 (1) MMC1_SDWP (2) I2C1_SDA (3) EHRPWM0_TRIPZONE_INPUT (4) PR1_UART0_RXD (5) PR1_EDIO_DATA_IN0 (6) PR1_EDIO_DATA_OUT0 (7) GPIO0_4
30	60	B13	3.3	SPI1_MISO Test with SPITest1.exe and Microchip SPI test board. See test section later in this document.	(0) MCASP0_FSX (1) EHRPWM0B (2) (3) SPI1_D0 (4) MMC1_SDCD_MUX1 (5) PR1_PRU0_PRU_R30_0 (6) PR1_PRU0_PRU_R31_1 (7) GPIO3_15
31	159	A17	3.3	SPIO_SCLK Test with SPITest0.exe And Microchip SPI test board. See test section later in this document.	(0) SPIO_SCLK (1) UART2_RXD (2) I2C2_SDA (3) EHRPWM0A (4) EMU2_MUX1 (5) (6) (7) GPIO0_2

EXPANSION CONNECTOR PINOUT CONTINUED

J4 Pin	LGA Pin	Ball ZCZ	Rail	LGA Name	MODES
32	75	D12	3.3	SPI_MOSI Test with SPITest1.exe and Microchip SPI test board. See test section later in this document.	(0) MCASP0_AXR0 (1) EHRPWM0_TRIPZONE (2) SPI1_D1 (3) MMC2_SDCCD_MUX1 (4) (5) (6) (7) GPIO3_16
33		F16	3.3	UART0_TX This is console so no other testing required.	Linux Console Access
34	140	H16	3.3	SPI1_SCLK Test with SPITest1.exe and Microchip SPI test board. See test section later in this document.	(0) GMII1_COL (1) RMII2_REFCLK (2) SPI1_SCLK (3) UART5_RXD (4) MCASP1_AXR2 (5) MMC2_DAT3 (6) MCASP0_AXR2 (7) GPIO3_0
35		F15	3.3	UART0_RX This is console so no other testing required.	Linux Console Access
36	154	D16	3.3	GPIO1_17 Test with: ./gpio1_19.sh	(0) GPMC_A1 (1) GMII2_RXDV (2) RGMII2_RCTL (3) MMC2_DAT0 (4) GPMC_A17 (5) PR1_MII1_TXD3 (6) EHRPWM0_SYNCO (7) GPIO1_17
37				3V3_EXP Test with Meter or Scope	3V3_EXP
38	153	U14	3.3	GPIO1_18 Test with: ./gpio1_18.sh	(0) GPMC_A2 (1) GMII2_TXD3 (2) RGMII2_TD3 (3) MMC_DAT1 (4) GPMC_A18 (5) PR1_MII_TXD2 (6) EHRPWM1A (7) GPIO1_18
39					Ground
40					Ground



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