Hardware Manual

Renesas R-Car

R-Car StarterKit CoM Express Interfaces

Renesas Electronics
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General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Handling of Unused Pins
   Handle unused pins in accordance with the directions given under Handling of Unused Pins in the manual.
   — The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible. Unused pins should be handled as described under Handling of Unused Pins in the manual.
2. Processing at Power-on
   The state of the product is undefined at the moment when power is supplied.
   — The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the moment when power is supplied.
   In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the moment when power is supplied until the reset process is completed.
   In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the moment when power is supplied until the power reaches the level at which resetting has been specified.
3. Prohibition of Access to Reserved Addresses
   Access to reserved addresses is prohibited.
   — The reserved addresses are provided for the possible future expansion of functions. Do not access these addresses; the correct operation of LSI is not guaranteed if they are accessed.
4. Clock Signals
   After applying a reset, only release the reset line after the operating clock signal has become stable. When switching the clock signal during program execution, wait until the target clock signal has stabilized.
   — When the clock signal is generated with an external resonator (or from an external oscillator) during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Moreover, when switching to a clock signal produced with an external resonator (or by an external oscillator) while program execution is in progress, wait until the target clock signal is stable.
5. Differences between Products
   Before changing from one product to another, i.e. to a product with a different part number, confirm that the change will not lead to problems.
   — The characteristics of Microprocessing unit or Microcontroller unit products in the same group but having a different part number may differ in terms of the internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

"R-Car Starter Kit Premier (H3) / Pro (M3) " ComExpress Pin List

	This parts list corresponds to Schematic revision Rev110						
Pin	Direction	Level/Group	Function	Signal	GPIO	Shared	Destination
A001	-	0V	Power	GND	-	-	-
A002	IN	(CSI2)	CSI2_2	CSI2_DATAP0	-	-	SiP(H3_Only)
A003	IN	(CSI2)	CSI2_2	CSI2_DATAN0	-	-	SiP(H3_Only)
A004	IN	3.3V	SYSTEM	BKUP_TRG	-	-	PMIC,CPLD
A005	OUT	3.3V	SYSTEM	BKUP_REQB	-	-	PMIC,CPLD
A006	OUT	3.3V	SYSTEM/POWER	DVFS_PGD	-	-	PMIC,CPLD
A007	IN	(CSI2)	CSI2_2	CSI2_CLKN	-	-	SiP(H3_Only)
A008	IN	(CSI2)	CSI2_2	CSI2_CLKP	-	-	SiP(H3_Only)
A009	IN	(CSI2)	CSI2_2	CSI2_DATAP1	-	-	SiP(H3_Only)
A010	IN	(CSI2)	CSI2_2	CSI2_DATAN1	-	-	SiP(H3_Only)
A011	-	0V	Power	GND	-	-	-
A012	IN	(CSI2)	CSI2_3	CSI3_DATAN0	-	-	SiP
A013	IN	(CSI2)	CSI2_3	CSI3_DATAP0	-	-	SiP
A014	OUT	3.3V	PWM	PWM2	GP2_08	-	PMIC,CPLD
A015	IN	3.3V	SYSTEM/POWER	EX_PWRONn	-	-	PMIC
A016	IN	(CSI2)	CSI2_3	CSI3_CLKN	-	-	SiP
A017	IN	(CSI2)	CSI2_3	CSI3_CLKP	-	-	SiP
A018	IN	3.3V	SYSTEM/POWER	RSTMODE_SW	-	-	PMIC
A019	OUT	1.8V?	LVDS0	LVDS0_CLK_P	-	-	SiP
A020	OUT	1.8V?	LVDS0	LVDS0_CLK_N	-	-	SiP
A021	-	0V	Power	GND	-	-	-
A022	IN	(CSI2)	CSI2_1	CSI1_DATAN1	-	-	SiP
A023	IN	(CSI2)	CSI2_1	CSI1_DATAP1	-	-	SiP
A024	IN	(CSI2)	CSI2_1	CSI1_CLKP	-	-	SiP
A025	IN	(CSI2)	CSI2_1	CSI1_CLKN	-	-	SiP
A026	IN	(CSI2)	CSI2_1	CSI1_DATAN0	-	-	SiP
A027	IN	(CSI2)	CSI2_1	CSI1_DATAP0	-	-	SiP
A028	IN	3.3V	SCIF0	SCIF0_RX/SD0_VL	GP5_01	with on-board PMIC	PMIC
A029	OUT	(LVDS)	LVDS0	LVDS0_CH1_P	-	-	SiP
A030	OUT	(LVDS)	LVDS0	LVDS0_CH1_N	-	-	SiP
A031	-	0V	Power	GND	-	-	-
A032	OUT	(LVDS)	LVDS0	LVDS0_CH3_P	-	-	SiP
A033	OUT	(LVDS)	LVDS0	LVDS0_CH3_N	-	-	SiP
A034	OUT	(LVDS)	LVDS0	LVDS0_CH0_P	-	-	SiP
A035	OUT	(LVDS)	LVDS0	LVDS0_CH0_N	-	-	SiP
A036	OUT	(LVDS)	LVDS0	LVDS0_CH2_P	-	-	SiP
A037	OUT	(LVDS)	LVDS0	LVDS0_CH2_N	-	-	SiP
A038	BIDIR	3.3V	HDMI_OUT	HDMI1_CEC	GP7_02	-	SiP(H3_Only)
A039	OUT	LVDS	HDMI_OUT	HDMI1_HPD	-	-	SiP(H3_Only)
A040	BIDIR	3.3V	GPIO	AVS2/GP7_01/PMIC	GP7_01	-	SiP,PMIC
A041	-	0V	Power	GND	-	-	-
A042	OUT	1.8V	JTAG	TDO_18	-	with on-board CN	CN3
A043	OUT	1.8V	SYSTEM/POWER	PRESETn_18	-	-	SiP,CN2,CN3,U22,CPLD,PMIC
A044	IN	1.8V	INTC	NMIn_18	-	-	SiP
A045	IN	1.8V	JTAG	TDI_18	-	with on-board CN	CN3
A046	IN	1.8V	JTAG	TRSTn_18	-	with on-board CN	CN3
A047	-	-	nc	-	-	-	-
A048	IN	1.8V	JTAG	TCK_18	-	with on-board CN	CN3
A049	BIDIR	3.3V	GPIO	AVS1/GP7_00/PMIC	GP7_00	-	SiP,PMIC
A050	OUT	3.3V	MSIOF1	MSIOF1_TXD/LVDS_BLEN	GP6_07	-	SiP,CPLD
A051	-	0V	Power	GND	-	-	-
A052	IN or OUT	3.3V	MSIOF0	MSIOF0_SCK	GP5_17	with on-board SW	SiP
A053	BIDIR	3.3V	USB 2.0 ch2	USB22_ID2	-	-	SiP
A054	IN	1.8V	JTAG	TMS_18	-	with on-board CN	CN3
A055	BIDIR	(5V via 30k)	USB 3.0 ch1	USB31_VBUS	-	-	SiP
A056	BIDIR	(5V via 30k)	USB 3.0 ch0	USB30_VBUS	-	-	SiP
A057	-	0V	Power	GND	-	-	-
A058	OUT	3.3V	MSIOF0	MSIOF0_TXD	GP5_20	with on-board SW	SiP
A059	IN	3.3V	MSIOF0	MSIOF0_RXD	GP5_22	with on-board SW	SiP
A060	-	0V	Power	GND	-	-	-
A061	BIDIR	3.3V	USB 3.0 ch1	USB31_ID	-	-	SiP
A062	BIDIR	3.3V	USB 3.0 ch0	USB30_ID	-	-	SiP
A063	IN or OUT	3.3V	SCIF1	SCIF1_SCK	GP6_21	-	SiP
A064	OUT	(PCIe)	PCIe ch1	PCIE1_TX_P	-	-	SiP
A065	OUT	(PCIe)	PCIe ch1	PCIE1_TX_M	-	-	SiP
A066	-	0V	Power	GND	-	-	-
A067	OUT	3.3V	MSIOF1	GP6_06/OTG_STAT2/MSIOF1_SS2	GP6_06	-	SiP
A068	OUT	(PCIe)	PCIe ch0	PCIE0_TX_P	-	-	SiP
A069	OUT	(PCIe)	PCIe ch0	PCIE0_TX_M	-	-	SiP
A070	-	0V	Power	GND	-	-	-
A071	IN or OUT	3.3V	HSCIF2	HSCIF2_HRTSZ/SSI_SDATA8	GP6_20	-	SiP
A072	IN or OUT	3.3V	HSCIF2	HSCIF2_HRX/SSI_SCK78	GP6_17	-	SiP
A073	IN or OUT	3.3V	HSCIF2	HSCIF2_HTX/SSI_WS78	GP6_18	-	SiP
A074	IN or OUT	3.3V	HSCIF2	HSCIF2_HCTSZ/SSI_SDATA7	GP6_19	-	SiP
A075	IN	3.3V	USB 3.0 ch1	USB31_OVC	GP6_31	-	SiP
A076	IN or OUT	3.3V	HSCIF0	HSCIF0_HRTSZ	GP5_16	-	SiP
A077	OUT	3.3V	USB 2.0 ch2	USB22_PWEN	GP6_14	-	SiP
A078	BIDIR	3.3V	I2C0	SDA0/SD3_PWEN	GP3_15	-	SiP
A079	IN or OUT	3.3V	MSIOF1	MSIOF1_SCK/SSI_SCK4	GP6_08	-	SiP,CPLD
A080	-	0V	Power	GND	-	-	-
A081	BIDIR	USB2.0	USB 3.0 ch1	USB31_DP	-	-	SiP
A082	BIDIR	USB2.0	USB 3.0 ch1	USB31_DM	-	-	SiP
A083	BIDIR	USB2.0	USB 3.0 ch0	USB30_DM	-	-	SiP
A084	BIDIR	USB2.0	USB 3.0 ch0	USB30_DP	-	-	SiP
A085	IN or OUT	5V	Power	D5.0V	-	-	-
A086	IN or OUT	5V	Power	D5.0V	-	-	-
A087	OUT	3.3V	AUDIO	EX_AUDIO_CLKA	-	-	X11
A088	OUT	LP-HCSL	PCIe ch0	PCIE0_CN_CLK_P	-	-	U87
A089	OUT	LP-HCSL	PCIe ch0	PCIE0_CN_CLK_M	-	-	U87
A090	-	0V	Power	GND	-	-	-
A091	IN or OUT	5V	Power	D5.0V	-	-	-
A092	IN or OUT	5V	Power	D5.0V	-	-	-
A093	IN or OUT	5V	Power	D5.0V	-	-	-
A094	IN or OUT	5V	Power	D5.0V	-	-	-
A095	IN or OUT	5V	Power	D5.0V	-	-	-
A096	OUT	3.3V	USB 3.0 ch1	USB31_PWEN	GP6_30	-	SiP
A097	IN	3.3V	USB 3.0 ch0	USB30_OVC	GP6_29	-	SiP
A098	OUT	3.3V	USB 3.0 ch0	USB30_PWEN	GP6_28	-	SiP
A099	BIDIR	USB2.0	USB 2.0 ch1	USB20_VBUS0	-	-	SiP
A100	-	0V	Power	GND	-	-	-
A101	BIDIR	3.3V	USB 2.0 ch0	USB20_ID0	-	-	SiP
A102	BIDIR	USB2.0	USB 2.0 ch0	USB20_DM0	-	-	SiP
A103	BIDIR	USB2.0	USB 2.0 ch0	USB20_DP0	-	-	SiP
A104	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
A105	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
A106	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
A107	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
A108	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
A109	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
A110	-	0V	Power	GND	-	-	-

Pin	Direction	Level/Group	Function	Signal	GPIO	Shared	Destination
B001	-	0V	Power	GND	-	-	-
B002	IN	2.5V	RGMII	AVB_PHY_INT_25	-	with on board PHY	U34
B003	IN	2.5V	RGMII	AVB_RD0	-	with on board PHY	SiP(Option:when Resistance mounted)
B004	IN	2.5V	RGMII	AVB_RD1	-	with on board PHY	SiP(Option:when Resistance mounted)
B005	IN	2.5V	RGMII	AVB_RD2	-	with on board PHY	SiP(Option:when Resistance mounted)
B006	IN	2.5V	RGMII	AVB_RD3	-	with on board PHY	SiP(Option:when Resistance mounted)
B007	IN	2.5V	RGMII	AVB_RXC	-	with on board PHY	SiP(Option:when Resistance mounted)
B008	IN	2.5V	RGMII	AVB_RX_CTL	-	with on board PHY	SiP(Option:when Resistance mounted)
B009	OUT	2.5V	RGMII	AVB_TD0	-	with on board PHY	SiP(Option:when Resistance mounted)
B010	OUT	2.5V	RGMII	AVB_TD1	-	with on board PHY	SiP(Option:when Resistance mounted)
B011	-	0V	Power	GND	-	-	-
B012	OUT	2.5V	RGMII	AVB_TD2	-	with on board PHY	SiP(Option:when Resistance mounted)
B013	OUT	2.5V	RGMII	AVB_TD3	-	with on board PHY	SiP(Option:when Resistance mounted)
B014	OUT	2.5V	RGMII	AVB_TXC	-	with on board PHY	SiP(Option:when Resistance mounted)
B015	OUT	2.5V	RGMII	AVB_TX_CTL	-	with on board PHY	SiP(Option:when Resistance mounted)
B016	BIDIR	2.5V	RGMII	AVB_MDIO_25	-	with on board PHY	U33
B017	OUT	2.5V	RGMII	AVB_MDC_25	-	with on board PHY	U33
B018	OUT	2.5V	RGMII	AVB_PHY_RESETn_25	-	with on board PHY	U35
B019	OUT	3.3V	CANFD1	MDT0/BSn/GP1_22/CAN1_TX	GP1_22	MDT0	SiP,CPLD
B020	IN	3.3V	CANFD1	WE1n/GP1_26/CAN1_RX	GP1_26	WE1n	SiP,CPLD
B021	-	0V	Power	GND	-	-	-
B022	IN	3.3V	VIN5	VI5_DATA7(ExD7)	GP0_07	MD05	SiP,CPLD
B023	IN	3.3V	VIN5	VI5_DATA4(ExD4)	GP0_04	MD11	SiP,CPLD
B024	IN	3.3V	VIN5	VI5_DATA5(ExD5)	GP0_05	MD03	SiP,CPLD
B025	IN	3.3V	VIN5	VI5_DATA0(ExD0)	GP0_00	-	SiP,CPLD
B026	IN	3.3V	VIN5	VI5_DATA3(ExD3)	GP0_03	MD02	SiP,CPLD
B027	IN	3.3V	VIN5	VI5_DATA2(ExD2)	GP0_02	MD01	SiP,CPLD
B028	IN	3.3V	VIN5	VI5_DATA1(ExD1)	GP0_01	MD00	SiP,CPLD
B029	BIDIR	1.8/3.3V	GPIO	GP4_14	GP4_14	-	SiP
B030	-	-	nc	-	-	-	-
B031	-	0V	Power	GND	-	-	-
B032	OUT	1.8V	POWER	D1.8V (current tbd)	-	-	-
B033	OUT	1.8V	POWER	D1.8V (current tbd)	-	-	-
B034	OUT	1.8V	POWER	D1.8V (current tbd)	-	-	-
B035	OUT	1.8V	POWER	D1.8V (current tbd)	-	-	-
B036	-	-	nc	-	-	-	-
B037	IN or OUT	3.3V	MSIOF1	MSIOF1_SYNC/SSI_WS4	GP6_09	-	SiP,CPLD
B038	-	-	nc	-	-	-	-
B039	IN or OUT	3.3V	SCIF0	SCIF0_SCK/I2C2_SDA	GP5_00	with on-board I2C	SiP,U38,U41
B040	OUT	3.3V	PWM	PWM3/IRQ2n/DU_DISP	GP2_02	-	SiP
B041	-	0V	Power	GND	-	-	-
B042	BIDIR	3.3V	GPIO	WE0n/GP1_25/CAN_CLK	GP1_25	-	SiP
B043	OUT	1.8/3.3V	SDHC3	SD3_PWR_SEL	GP4_13	-	SiP
B044	OUT	3.3V	-	ExA20/PWM2	-	-	SiP,CPLD
B045	BIDIR	1.8/3.3V	SDHC3	SD3_DAT1_V	GP4_10	-	SiP
B046	IN	3.3V	VIN5	VI5_CLKENB(CS0n)	GP1_20	-	SiP,CPLD
B047	OUT	1.8/3.3V	SDHC3	SD3_PWR_EN	GP4_17	-	SiP
B048	OUT	3.3V	PWM	ExA22/PWM0	GP2_06	-	SiP,CPLD
B049	IN	3.3V	SYSTEM	PRESET_SYSZ	-	-	CPLD
B050	OUT	3.3V	SYSTEM	PRESET_CBZ(PRESETOUTn)	-	-	SiP,U35,U38,CPLD
B051	-	0V	Power	GND	-	-	-
B052	OUT	1.8/3.3V	SDHC3	SD3_CLK_V	GP4_07	-	SiP
B053	BIDIR	3.3V	GPIO	GP2_00/IRQ0n	GP2_00	-	SiP,PMIC
B054	BIDIR	3.3V	I2C5	#SDA5	-	-	SiP
B055	BIDIR	3.3V	I2C5	#SCL5	-	-	SiP
B056	BIDIR	3.3V	I2C1	SDA1	GP5_24	-	SiP
B057	BIDIR	3.3V	GPIO	GP5_25/MLB/IOEX_INTn	GP5_25	-	SiP
B058	IN or OUT	2.5V	Power	VLDO_2.5V	-	-	EtherAVB(GbPHY)
B059	IN or OUT	2.5V	Power	VLDO_2.5V	-	-	EtherAVB(GbPHY)
B060	-	0V	Power	GND	-	-	-
B061	-	-	nc	-	-	-	-
B062	OUT	3.3V	PWM	ExA25/PWM4	GP2_03	-	SiP,CPLD
B063	IN or OUT	3.3V	MSIOF0	MSIOF0_SYNC	GP5_18	-	SiP
B064	IN	(PCIe)	PCIe ch1	PCIE1_RX_P	-	-	SiP
B065	IN	(PCIe)	PCIe ch1	PCIE1_RX_M	-	-	SiP
B066	IN	3.3V	VIN5	VI5_CLK(CS1n/A26)	GP1_21	-	SiP
B067	OUT	3.3V	MSIOF0	MSIOF0_SS2/AUDIO_CLKC	GP5_21	-	SiP
B068	IN	(PCIe)	PCIe ch0	PCIE0_RX_P	-	-	SiP
B069	IN	(PCIe)	PCIe ch0	PCIE0_RX_M	-	-	SiP
B070	-	0V	Power	GND	-	-	-
B071	IN	(SATA)	SATA	SATA_RX_M	-	-	SiP
B072	IN	(SATA)	SATA	SATA_RX_P	-	-	SiP
B073	IN or OUT	3.3V	SCIF2	SCIF2_SCK/SD2_VL	GP5_09	-	SiP
B074	OUT	3.3V	SCIF1	GP5_06/TX1/HTX1_CN	GP5_06	-	SiP
B075	OUT	(SATA)	SATA	SATA_TX_P	-	-	SiP
B076	OUT	(SATA)	SATA	SATA_TX_M	-	-	SiP
B077	OUT	3.3V	MSIOF1	GP6_05/OTG_STAT1/MSIOF1_SS1	GP6_05	-	SiP
B078	IN	3.3V	MSIOF1	MSIOF1_RXD/SSI_SDATA4	GP6_10	-	SiP,CPLD
B079	IN	3.3V	SCIF1	GP5_05/RX1/HRX1_CN	GP5_05	-	SiP
B080	-	0V	Power	GND	-	-	-
B081	IN or OUT	3.3V	HSCIF0	HSCIF0_HCTS2	GP5_15	-	SiP
B082	-	-	nc	-	-	-	-
B083	OUT	3.3V	Power	D3.3V	-	-	-
B084	OUT	3.3V	Power	D3.3V	-	-	-
B085	OUT	3.3V	Power	D3.3V	-	-	-
B086	OUT	3.3V	Power	D3.3V	-	-	-
B087	OUT	3.3V	Power	D3.3V	-	-	-
B088	OUT	3.3V	HSCIF0	HSCIF0_HTX	GP5_14	-	SiP
B089	IN	3.3V	HSCIF0	HSCIF0_HRX	GP5_13	-	SiP
B090	-	0V	Power	GND	-	-	-
B091	IN or OUT	5V	Power	D5.0V	-	-	-
B092	IN or OUT	5V	Power	D5.0V	-	-	-
B093	IN or OUT	5V	Power	D5.0V	-	-	-
B094	IN or OUT	5V	Power	D5.0V	-	-	-
B095	IN or OUT	5V	Power	D5.0V	-	-	-
B096	IN or OUT	5V	Power	D5.0V	-	-	-
B097	IN or OUT	3.3V	SCIF0	SCIF0_CTSZ/SD1_VL	GP5_03	-	SiP
B098	OUT	3.3V	CANFD0	MDT1/RDn/GP1_23/CAN0_TX	GP1_23	MDT1	SiP,CPLD
B099	IN	3.3V	CANFD0	RD/WR#/GP1_24/CAN0_RX	GP1_24	RD/WR	SiP,CPLD
B100	-	0V	Power	GND	-	-	-
B101	IN or OUT	5V	Power	D5.0V	-	-	-
B102	IN or OUT	5V	Power	D5.0V	-	-	-
B103	IN or OUT	5V	Power	D5.0V	-	-	-
B104	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
B105	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
B106	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
B107	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
B108	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
B109	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
B110	-	0V	Power	GND	-	-	-

Pin	Direction	Level/Group	Function	Signal	GPIO	Shared	Destination
C001	-	0V	Power	GND	-	-	-
C002	-	0V	Power	GND	-	-	-
C003	IN	(CSI2)	CSI2_2	CSI2_DATAN2	-	-	SiP
C004	IN	(CSI2)	CSI2_2	CSI2_DATAP2	-	-	SiP
C005	-	0V	Power	GND	-	-	-
C006	IN	(CSI2)	CSI2_2	CSI2_DATAN3	-	-	SiP
C007	IN	(CSI2)	CSI2_2	CSI2_DATAP3	-	-	SiP
C008	-	0V	Power	GND	-	-	-
C009	OUT	3.3V	SYSTEM/POWER	PMIC_GPIO0	-	-	PMIC
C010	BIDIR	3.3V	I2C4	I2C4_SDA	-	with on-board I2C	SiP,U61,U87
C011	-	0V	Power	GND	-	-	-
C012	BIDIR	1.8V	QSPI	QSPI0_IO3	-	with RPC	U5,CN2
C013	BIDIR	3.3V	I2C4	I2C4_SCL	-	with on-board I2C	SiP,U61,U87
C014	-	0V	Power	GND	-	-	-
C015	BIDIR	1.8V	QSPI	QSPI0_IO2	-	with RPC	U5,CN2
C016	OUT	0.8V	POWER	DDR0_1.8V (probe only)	-	-	-
C017	OUT	3.3V	-	WE1n/GP1_26/CAN1_RX	GP1_26	-	SiP
C018	IN or OUT	3.3V	SCIF0	SCIF0_RTSZ/I2C2_SCL	GP5_04	with on-board I2C	SiP,U38,U41
C019	BIDIR	3.3V	I2C0	SCL0/SD3_VL	GP3_14	with on-board PMIC	SiP,PMIC
C020	IN	1.8V	BSMODE	BSMODE_18	-	-	SiP
C021	-	0V	Power	GND	-	-	-
C022	OUT	3.3V	USB_OTG	GP6_16/OTG_EXTLPn	GP6_16	-	SiP
C023	IN	3.3V	VIN4	VI4_DATA4(ExD12)	GP0_12	DU_RGB/MD09	SiP,CPLD
C024	BIDIR	-	GPIO	GP6_04	-	-	SiP
C025	IN	3.3V	VIN4	VI4_DATA5(ExD13)	GP0_13	DU_RGB/MD10	SiP,CPLD
C026	IN	3.3V	VIN4	VI4_DATA2(ExD10)	GP0_10	DU_RGB/MD07	SiP,CPLD
C027	IN	3.3V	VIN4	VI4_DATA3(ExD11)	GP0_11	DU_RGB/MD08	SiP,CPLD
C028	IN	3.3V	VIN4	VI4_DATA0(ExD8)	GP0_08	DU_RGB/MD12	SiP,CPLD
C029	IN	3.3V	VIN4	VI4_DATA1(ExD9)	GP0_09	DU_RGB/MD06	SiP,CPLD
C030	IN	3.3V	VIN5	VI5_DATA6(ExD6)	GP0_06	MD04	SiP,CPLD
C031	-	0V	Power	GND	-	-	-
C032	-	-	nc	-	-	-	-
C033	OUT	3.3V	-	EXT_LPO	-	-	SiP
C034	IN	3.3V	VIN4	VI4_DATA6(ExD14)	GP0_14	DU_RGB	SiP,CPLD
C035	IN	3.3V	VIN4	VI4_DATA7(ExD15)	GP0_15	DU_RGB	SiP,CPLD
C036	IN	3.3V	VIN4	VI4_DATA8(ExA0)	GP1_00	DU_RGB/MD28	SiP,CPLD
C037	IN	3.3V	VIN4	VI4_DATA9(ExA1)	GP1_01	DU_RGB/MD27	SiP,CPLD
C038	IN	3.3V	VIN4	VI4_DATA10(ExA2)	GP1_02	DU_RGB	SiP,CPLD
C039	IN	3.3V	VIN4	VI4_DATA11(ExA3)	GP1_03	DU_RGB/MD26	SiP,CPLD
C040	-	-	nc	-	-	-	-
C041	-	0V	Power	GND	-	-	-
C042	IN	3.3V	VIN4/5	VIx_DATA12(ExA4)	GP1_04	DU_RGB/MD25	SiP,CPLD
C043	IN	3.3V	VIN4/5	VIx_DATA13(ExA5)	GP1_05	DU_RGB/MD24	SiP,CPLD
C044	OUT	3.3V	PWM	PWM1	GP2_07	-	CPLD
C045	OUT	3.3V	CPG	FSCLKST	-	-	SiP
C046	BIDIR	3.3V	GPIO	SD0_CD	GP3_12	with on-board SD	SiP,CN6
C047	IN	3.3V	SYSTEM	SYS_TRG	-	-	CPLD
C048	OUT	3.3V	AUDIO	EX_AUDIO_CLKB	-	-	U41
C049	BIDIR	3.3V	GPIO	SD0_WP	GP3_13	with on-board SD	SiP,CN6
C050	BIDIR	1.8/3.3V	SDHC3	SD3_DAT3_V	GP4_12	with on-board SD	SiP,CN6
C051	-	0V	Power	GND	-	-	-
C052	OUT	1.8/3.3V	POWER	VLDO_SD3 (1.6A)	-	-	-
C053	OUT	1.8/3.3V	POWER	VLDO_SD3 (1.6A)	-	-	-
C054	OUT	1.8/3.3V	POWER	VLDO_SD3 (1.6A)	-	-	-
C055	OUT	1.8/3.3V	POWER	VLDO_SD3 (1.6A)	-	-	-
C056	OUT	0.8V	POWER	VLDO_SD0 (probe only)	-	-	-
C057	BIDIR	1.8/3.3V	SDHC3	SD3_DAT0_V	GP4_09	with on-board SD	SiP,CN6
C058	IN	1.8/3.3V	SDHC3	SD3_CD_V	GP4_15	with on-board SD	SiP,CN6
C059	BIDIR	1.8/3.3V	SDHC3	SD3_DAT2_V	GP4_11	with on-board SD	SiP,CN6
C060	-	0V	Power	GND	-	-	-
C061	IN	(CSI2)	CSI2_0	CSI0_CLKP	-	-	SiP
C062	IN	(CSI2)	CSI2_0	CSI0_CLKN	-	-	SiP
C063	IN	1.8/3.3V	SDHC3	SD3_WP_V	GP4_16	with on-board SD	SiP,CN6
C064	BIDIR	1.8/3.3V	SDHC3	SD3_CMD_V	GP4_08	with on-board SD	SiP,CN6
C065	IN	(CSI2)	CSI2_0	CSI0_DATAP0	-	-	SiP
C066	IN	(CSI2)	CSI2_0	CSI0_DATAN0	-	-	SiP
C067	OUT	3.3V	MSIOF0	MSIOF0_SS1	GP5_19	-	SiP
C068	IN	(CSI2)	CSI2_0	CSI0_DATAP1	-	-	SiP
C069	IN or OUT	3.3V	HSCIF0	HSCIF0_HSCK	GP5_12	-	SiP
C070	-	0V	Power	GND	-	-	-
C071	IN	(CSI2)	CSI2_0	CSI0_DATAN1	-	-	SiP
C072	IN	(CSI2)	CSI2_0	CSI0_DATAP2	-	-	SiP
C073	-	0V	Power	GND	-	-	-
C074	IN	(CSI2)	CSI2_0	CSI0_DATAN2	-	-	SiP
C075	IN	(CSI2)	CSI2_0	CSI0_DATAP3	-	-	SiP
C076	-	0V	Power	GND	-	-	-
C077	IN	3.3V	USB 2.0 ch0	USB20_OVC	GP6_25	-	SiP
C078	IN	(CSI2)	CSI2_0	CSI0_DATAN3	-	-	SiP
C079	OUT	3.3V	USB 2.0 ch0	USB20_PWEN	GP6_24	-	SiP
C080	-	0V	Power	GND	-	-	-
C081	IN	3.3V	VIN5	VI5_FIELD(ExA11)	GP1_11	-	SiP,CPLD
C082	OUT	3.3V	DU_RGB	DU_DR0(ExD8)	GP0_08	MD12	SiP,CPLD
C083	OUT	3.3V	DU_RGB	DU_DR1(ExD9)	GP0_09	MD06	SiP,CPLD
C084	-	0V	Power	GND	-	-	-
C085	OUT	3.3V	DU_RGB	DU_DR2(ExD10)	GP0_10	MD07	SiP,CPLD
C086	OUT	3.3V	DU_RGB	DU_DR3(ExD11)	GP0_11	MD08	SiP,CPLD
C087	-	0V	Power	GND	-	-	-
C088	OUT	3.3V	DU_RGB	DU_DR4(ExD12)	GP0_12	MD09	SiP,CPLD
C089	OUT	3.3V	DU_RGB	DU_DR5(ExD13)	GP0_13	MD10	SiP,CPLD
C090	-	0V	Power	GND	-	-	-
C091	OUT	3.3V	DU_RGB	DU_DR6(ExD14)	GP0_14	-	SiP,CPLD
C092	OUT	3.3V	DU_RGB	DU_DR7(ExD15)	GP0_15	-	SiP,CPLD
C093	-	0V	Power	GND	-	-	-
C094	OUT	3.3V	DU_RGB	DU_DB0(ExA0)	GP1_00	MD28	SiP,CPLD
C095	OUT	3.3V	DU_RGB	DU_DB1(ExA1)	GP1_01	MD27	SiP,CPLD
C096	-	0V	Power	GND	-	-	-
C097	OUT	3.3V	DU_RGB	DU_DB2(ExA2)	GP1_02	-	SiP,CPLD
C098	OUT	3.3V	DU_RGB	DU_DB3(ExA3)	GP1_03	MD26	SiP,CPLD
C099	OUT	3.3V	DU_RGB	DU_DB4(ExA4)	GP1_04	MD25	SiP,CPLD
C100	-	0V	Power	GND	-	-	-
C101	OUT	3.3V	DU_RGB	DU_DB5(ExA5)	GP1_05	MD24	SiP,CPLD
C102	IN	3.3V	VIN5	VI5_HSYNCZ(ExA10)	GP1_10	MD20	SiP,CPLD
C103	-	0V	Power	GND	-	-	-
C104	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
C105	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
C106	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
C107	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
C108	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
C109	-	-	NC(Power)	NC(VCC12V0)	-	-	VCC12V0 Starter Kit Not Used (Option FAN)
C110	-	0V	Power	GND	-	-	-

Pin	Direction	Level/Group	Function	Signal	GPIO	Shared	Destination
D001	-	0V	Power	GND	-	-	-
D002	-	0V	Power	GND	-	-	-
D003	OUT	3.3V	SYSTEM/POWER	PMIC_GPIO1	-	-	PMIC
D004	OUT	0.8V	POWER	DDR1_1.8V (probe only)	-	-	-
D005	-	0V	Power	GND	-	-	-
D006	OUT	3.3V	SYSTEM	CLKOUT	-	-	SiP
D007	OUT	1.8V	QSPI	QSPI0_SPCLK	-	with RPC	U5,CN2
D008	-	0V	Power	GND	-	-	-
D009	OUT	1.8V	QSPI	QSPI0_SSL	-	with RPC	U5,CN2
D010	BIDIR	1.8V	QSPI	QSPI0_IO0	-	with RPC	U5,CN2
D011	-	0V	Power	GND	-	-	-
D012	BIDIR	1.8V	QSPI	QSPI0_IO1	-	with RPC	U5,CN2
D013	BIDIR	3.3V	GPIO	GP6_22	GP6_22	-	SiP
D014	-	0V	Power	GND	-	-	-
D015	-	-	nc	-	-	-	-
D016	-	-	nc	-	-	-	-
D017	-	-	nc	-	-	-	-
D018	-	-	nc	-	-	-	-
D019	-	-	nc	-	-	-	-
D020	-	-	nc	-	-	-	-
D021	-	0V	Power	GND	-	-	-
D022	IN	3.3V	VIN5	VI5_DATA10(ExA14)	GP1_14	DU_RGB/MD18	SiP,CPLD
D023	IN	3.3V	VIN5	VI5_DATA11(ExA15)	GP1_15	DU_RGB/MD17	SiP,CPLD
D024	OUT	3.3V	HDMI_OUT	HDMI1_SCL	-	-	SiP(H3_Only)
D025	BIDIR	3.3V	HDMI_OUT	HDMI1_SDA	-	-	SiP(H3_Only)
D026	OUT	LVDS	HDMI_OUT	HDMI1_TMDSDATAP0	-	-	SiP(H3_Only)
D027	OUT	LVDS	HDMI_OUT	HDMI1_TMDSDATAN0	-	-	SiP(H3_Only)
D028	-	-	nc	-	-	-	-
D029	OUT	LVDS	HDMI_OUT	HDMI1_TMDSDATAP1	-	-	SiP(H3_Only)
D030	OUT	LVDS	HDMI_OUT	HDMI1_TMDSDATAN1	-	-	SiP(H3_Only)
D031	-	0V	Power	GND	-	-	-
D032	OUT	LVDS	HDMI_OUT	HDMI1_TMDSDATAP2	-	-	SiP(H3_Only)
D033	OUT	LVDS	HDMI_OUT	HDMI1_TMDSDATAN2	-	-	SiP(H3_Only)
D034	OUT	1.1V	PMIC	BKUP_CTRL_11	-	-	U72,SiP
D035	IN	3.3V	VIN4	VI4_HSYNCZ(ExA18)	GP1_18	DU_RGB/MD14	SiP,CPLD
D036	OUT	LVDS	HDMI_OUT	HDMI1_TMDSCLKP	-	-	SiP(H3_Only)
D037	OUT	LVDS	HDMI_OUT	HDMI1_TMDSCLKN	-	-	SiP(H3_Only)
D038	IN	3.3V	VIN4	VI4_VSYNCZ(ExA17)	GP1_17	DU_RGB/MD15	SiP,CPLD
D039	IN	3.3V	VIN4	VI4_CLK(EX_WAIT0n//DU_DOTCLKOUT0)	GP1_27	DU_RGB	SiP
D040	-	-	nc	-	-	-	-
D041	-	0V	Power	GND	-	-	-
D042	-	-	nc	-	-	-	-
D043	IN	3.3V	VIN4	VI4_CLKENB(ExA19)	GP1_19	DU_RGB	SiP,CPLD
D044	-	-	nc	-	-	-	-
D045	-	-	nc	-	-	-	-
D046	OUT	3.3V	SYSTEM	RD/WR#/GP1_24/CAN0_RX	GP1_24	-	SiP
D047	IN or OUT	1.2V	Power	D1.2V	-	-	EtherAVB(GbPHY)
D048	IN or OUT	1.2V	Power	D1.2V	-	-	EtherAVB(GbPHY)
D049	IN	3.3V	SCIF2	SCIF2_RXD_CN	GP5_11	with on-board USB	SiP
D050	IN	3.3V	VIN5	VI5_VSYNCZ(ExA9)	GP1_09	-	SiP,CPLD
D051	-	0V	Power	GND	-	-	-
D052	BIDIR	3.3V	GPIO	ExA8	GP1_08	-	SiP,CPLD
D053	IN	3.3V	VIN4	VI4_FIELD(ExA16)	GP1_16	DU_RGB/MD16	SiP,CPLD
D054	OUT	3.3V	MSIOF2	GP2_10/MSIOF2_SS1/PHY_RESETn	GP2_10	PHY_RESET	U35,SiP
D055	IN	3.3V	VIN5	VI5_DATA9(ExA13)	GP1_13	DU_RGB/MD19	SiP,CPLD
D056	IN	3.3V	USB 2.0 ch2	USB22_OVC	GP6_15	-	SiP
D057	IN	3.3V	VIN5	VI5_DATA8(ExA12)	GP1_12	DU_RGB/MD21	SiP,CPLD
D058	IN	3.3V	VIN4/5	Vix_DATA14(ExA6)	GP1_06	DU_RGB/MD23	SiP,CPLD
D059	OUT	3.3V	SCIF0	SCIF0_TX/SD0_PWEN	GP5_02	with on-board SD	SiP,U19
D060	-	0V	Power	GND	-	-	-
D061	IN	3.3V	VIN4/5	Vix_DATA15(ExA7)	GP1_07	DU_RGB/MD22	SiP,CPLD
D062	IN	(P)CML	USB 3.0 ch1	USB31_TX_P	-	-	SiP
D063	IN	(P)CML	USB 3.0 ch1	USB31_TX_M	-	-	SiP
D064	OUT	3.3V	SCIF2	SCIF2_TXD_CN	GP5_10	with on-board USB	SiP
D065	OUT	(P)CML	USB 3.0 ch1	USB31_RX_P	-	-	SiP
D066	OUT	(P)CML	USB 3.0 ch1	USB31_RX_M	-	-	SiP
D067	-	0V	Power	GND	-	-	-
D068	IN	(P)CML	USB 3.0 ch0	USB30_TX_P	-	-	SiP
D069	IN	(P)CML	USB 3.0 ch0	USB30_TX_M	-	-	SiP
D070	-	0V	Power	GND	-	-	-
D071	OUT	(P)CML	USB 3.0 ch0	USB30_RX_P	-	-	SiP
D072	OUT	(P)CML	USB 3.0 ch0	USB30_RX_M	-	-	SiP
D073	-	0V	Power	GND	-	-	-
D074	BIDIR	USB2.0	USB 2.0 ch2	USB22_DP2	-	-	SiP
D075	BIDIR	USB2.0	USB 2.0 ch2	USB22_DM2	-	-	SiP
D076	-	0V	Power	GND	-	-	-
D077	IN or OUT	3.3V	SCIF1	GP5_07/CTS1n/HCTS1n	GP5_07	-	SiP
D078	OUT	LP-HCSL	PCIe ch1	PCIE1_CN_CLK_P	-	-	U87
D079	OUT	LP-HCSL	PCIe ch1	PCIE1_CN_CLK_M	-	-	U87
D080	-	0V	Power	GND	-	-	-
D081	IN or OUT	3.3V	SCIF1	GP5_08/RTS1n/HRTS1n	GP5_08	-	SiP
D082	OUT	3.3V	DU_RGB	DU_DB6	GP1_06	MD23	SiP,CPLD
D083	OUT	3.3V	DU_RGB	DU_DB7	GP1_07	MD22	SiP,CPLD
D084	-	0V	Power	GND	-	-	-
D085	OUT	3.3V	DU_RGB	DU_DG0	GP1_16	MD16	SiP,CPLD
D086	OUT	3.3V	DU_RGB	DU_DG1	GP1_17	MD15	SiP,CPLD
D087	-	0V	Power	GND	-	-	-
D088	OUT	3.3V	DU_RGB	DU_DG2	GP1_18	MD14	SiP,CPLD
D089	OUT	3.3V	DU_RGB	DU_DG3	GP1_19	MD13	SiP,CPLD
D090	-	0V	Power	GND	-	-	-
D091	OUT	3.3V	DU_RGB	DU_DG4	GP1_12	MD21	SiP,CPLD
D092	OUT	3.3V	DU_RGB	DU_DG5	GP1_13	MD19	SiP,CPLD
D093	-	0V	Power	GND	-	-	-
D094	OUT	3.3V	DU_RGB	DU_DG6	GP1_14	MD18	SiP,CPLD
D095	OUT	3.3V	DU_RGB	DU_DG7	GP1_15	MD17	SiP,CPLD
D096	-	0V	Power	GND	-	-	-
D097	OUT	3.3V	DU_RGB	ExA24/DU_EXHSYNC_DU_HSYNC	GP2_04	-	SiP,CPLD
D098	OUT	3.3V	DU_RGB	ExA23/DU_EXVSYNC_DU_VSYNC	GP2_05	-	SiP,CPLD
D099	OUT	3.3V	DU_RGB	DU_DISP/IRQ1n	GP2_01	-	SiP
D100	-	0V	Power	GND	-	-	-
D101	OUT	3.3V	DU_RGB	EX_WAIT0n//DU_DOTCLKOUT0	GP1_27	-	SiP
D102	BIDIR	3.3V	I2C1	GP5_23/MLB/SCL1	GP5_23	with on-board SW	SiP
D103	-	0V	Power	GND	-	-	-
D104	IN or OUT	12V	Power	VCC12V0	-	-	Starter Kit Not Used (Option FAN)
D105	IN or OUT	12V	Power	VCC12V0	-	-	Starter Kit Not Used (Option FAN)
D106	IN or OUT	12V	Power	VCC12V0	-	-	Starter Kit Not Used (Option FAN)
D107	IN or OUT	12V	Power	VCC12V0	-	-	Starter Kit Not Used (Option FAN)
D108	IN or OUT	12V	Power	VCC12V0	-	-	Starter Kit Not Used (Option FAN)
D109	IN or OUT	12V	Power	VCC12V0	-	-	Starter Kit Not Used (Option FAN)
D110	-	0V	Power	GND	-	-	-

R-Car Starter Kit Premier

R-Car Starter Kit Pro

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