



Gumstix Overo™ COM: Signals

This document is being published as a general reference on general or special purpose interface line usage to aid:

- hardware engineers needing design-support for expansion boards, and
- programmers writing software that takes advantage of signal multiplexing.

For a listing of features available on the models of Overo COMs, please refer to [Overo Feature Sheet](#)

For sample layout and schematics of expansion boards, and mechanical specifications of all Gumstix® computers-on-module, please see [Hardware Publication](#)

For instructions on setting up a software build environment, see [Software Build Instructions](#)

General comments

The general philosophy for external signals is to make them available with minimal alterations from the processor. GPMC is used on board only by the NAND of the PoP.

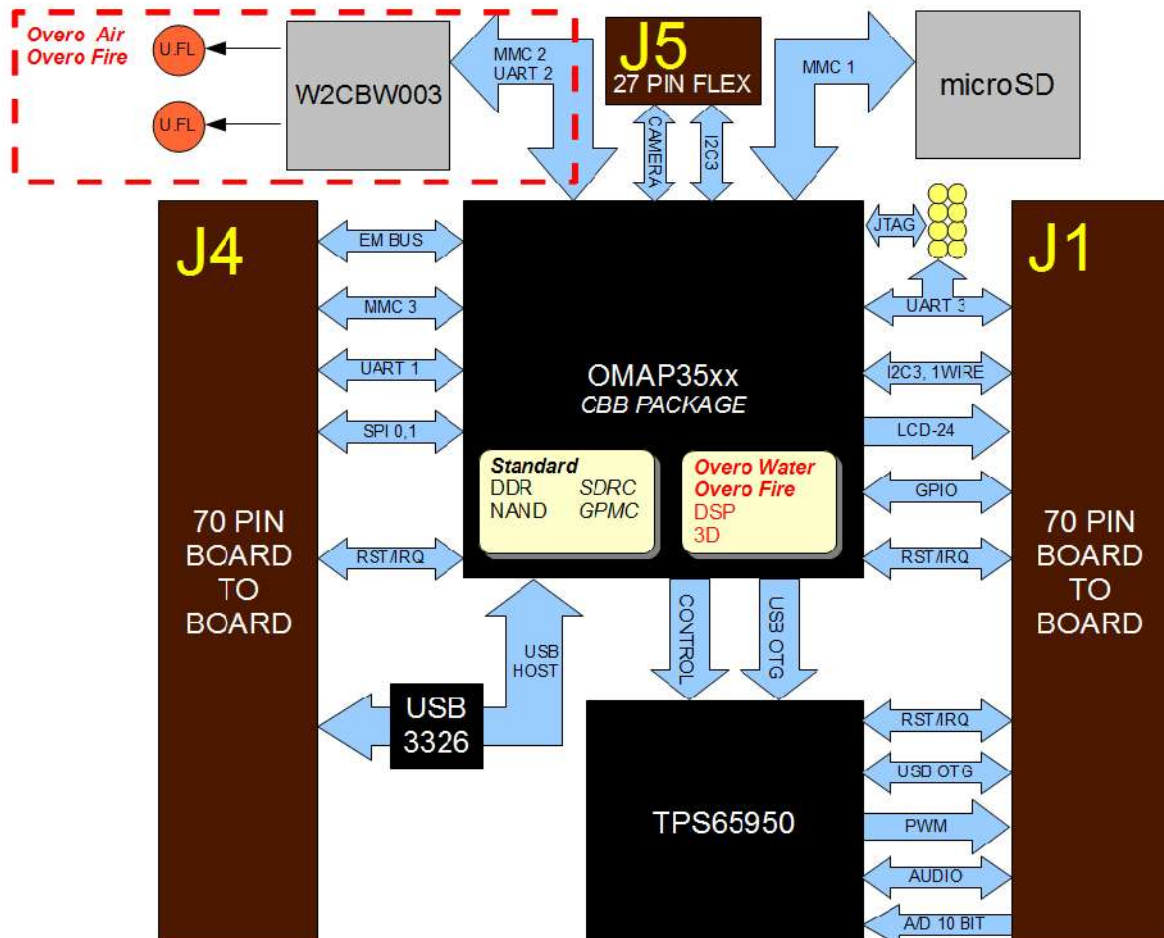
Unless otherwise noted, signals are from the OMAP35xx, and all GPIO, EM, Reset and Interrupt signals are 1.8V.

Signal names are determined first by the source GPIO, then the standard usage on Gumstix Overo COMs or as allocated for the most common external interface modules. Unless otherwise noted, these signals are available for alternate usage as GPIO as long as the kernel is built in a way to avoid conflicting interpretation of the lines. Please refer to [TI OMAP Documentation](#) for a description of the available alternate signals and usage by Package-on-package NAND.

A/D lines feed directly to the TPS65950 and use a 2.5V Reference against AGND
Headset signals are treated as “Analog mode: pseudo-differential.”

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On board signals

On board microSD signals (used for boot)	
MMC1	GPIO_120:125
Wifi and bluetooth module	
GPIO164_BT_nRESET	GPIO164
GPIO16_W2W_nRESET	GPIO16
GPIO54_BTWI_nPOWERON	GPIO54
USB Control	
USBH Signals	GPIO24:29, GPIO_177:182 Note: GPIO_24 is USBH_CLK
GPIO183_USBH_nRESET	GPIO_183
Bluetooth interface	
GPIO_BTUART2	GPIO_140:143
GPIO_BT_BSP4	GPIO_152:155 (future use)
Wifi interface	
GPIO_WLAN_MMC2	GPIO_130:139
4030 interrupt	
FAB revisions <=2410	GPIO112_4030 IRQ
FAB revisions >=2516	GPIO_0_4030 IRQ
GPIO_149_START_ADC	GPIO_149
LED Controls on board	
D1: Blue	WLAN Active from the wifi module
D2: Green	Power
D3: Blue	LED_B Signal from TPS65950, FAB revisions >=2765
Board description	
	GPIO_126:129 (for future use)

Signals available through headers

Serial Ports

CONN	PIN	SIGNAL NAME	ALLOCATION	ALTERNATE	REFERENCE
J1	47	GPIO170_HDQ_1WIRE	HDQ_1WIRE	GPIO170	
J1	13	GPIO184_I2C3_SCL	I2C3_SCL	GPIO184	
J1	10	GPIO185_I2C3_SDA	I2C3_SDA	GPIO185	
J1	22	GPIO163_IR_CTS3	IR_CTS3	GPIO163	(*) CONSOLE PORT
J1	31	GPIO165_IR_RXD3	IR_RXD3	GPIO165	(*) CONSOLE PORT
J1	26	GPIO166_IR_TXD3	IR_TXD3	GPIO166	
J4	48	GPIO151_RXD1	RXD1	GPIO151	
J4	24	GPIO148_TXD1	TXD1	GPIO148	
J5	26	GPIO184_I2C3_SCL	I2C3_SCL	GPIO184	
J5	27	GPIO185_I2C3_SDA	I2C3_SDA	GPIO185	

Camera signals

CONN	PIN	SIGNAL NAME	ALLOCATION	ALTERNATE	REFERENCE
J5	6	GPIO99_CAM_D0	CAM_D0	GPIO99	
J5	7	GPIO100_CAM_D1	CAM_D1	GPIO100	
J5	8	GPIO101_CAM_D2	CAM_D2	GPIO101	
J5	9	GPIO102_CAM_D3	CAM_D3	GPIO102	
J5	10	GPIO103_CIF_DD04	CAM_D4	GPIO103	
J5	11	GPIO104_CIF_DD05	CAM_D5	GPIO104	
J5	12	GPIO105_CAM_D6	CAM_D6	GPIO105	
J5	13	GPIO106_CIF_DD07	CAM_D7	GPIO106	
J5	14	GPIO107_CIF_DD08	CAM_D8	GPIO107	
J5	15	GPIO108_CIF_DD09	CAM_D9	GPIO108	
J5	16	GPIO109_CAM_D10	CAM_D10	GPIO109	
J5	17	GPIO110_CAM_D11	CAM_D11	GPIO110	
J5	25	GPIO63_CAM_IRQ	CAM_IRQ	GPIO63	
J5	20	GPIO126_CAM_STROBE	CAM_STROBE	GPIO126	
J5	19	GPIO167_CAM_WEN	CAM_WEN	GPIO167	
J5	18	GPIO111_CAM_XCLKB	CAM_XCLKB	GPIO111	
J5	1	GPIO94_CAM_HS	CAM_HS	GPIO94	
J5	2	GPIO95_CAM_VS	CAM_VS	GPIO95	
J5	3	GPIO96_CAM_XCLKA	CAM_XCLKA	GPIO96	
J5	4	GPIO97_CAM_PCLK	CAM_PCLK	GPIO97	
J5	5	GPIO98_CAM_FLD	CAM_FLD	GPIO98	

Display signals

CONN	PIN	SIGNAL NAME	ALLOCATION	ALTERNATE REFERENCE
J1	32	GPIO66_L_PCLK	L_PCLK	GPIO66
J1	35	GPIO67_L_LCLK	L_LCLK	GPIO67
J1	34	GPIO68_L_FCLK	L_FCLK	GPIO68
J1	43	GPIO69_L_BIAS	L_BIAS	GPIO69
J1	3	GPIO70_L_DD00	L_DD00	GPIO70
J1	2	GPIO71_L_DD01	L_DD01	GPIO71
J1	6	GPIO72_L_DD02	L_DD02	GPIO72
J1	4	GPIO73_L_DD03	L_DD03	GPIO73
J1	7	GPIO74_L_DD04	L_DD04	GPIO74
J1	5	GPIO75_L_DD05	L_DD05	GPIO75
J1	33	GPIO76_L_DD06	L_DD06	GPIO76
J1	29	GPIO77_L_DD07	L_DD07	GPIO77
J1	30	GPIO78_L_DD08	L_DD08	GPIO78
J1	28	GPIO79_L_DD09	L_DD09	GPIO79
J1	11	GPIO80_L_DD10	L_DD10	GPIO80
J1	12	GPIO81_L_DD11	L_DD11	GPIO81
J1	60	GPIO82_L_DD12	L_DD12	GPIO82
J1	17	GPIO83_L_DD13	L_DD13	GPIO83
J1	19	GPIO84_L_DD14	L_DD14	GPIO84
J1	20	GPIO85_L_DD15	L_DD15	GPIO85
J1	44	GPIO86_L_DD16	L_DD16	GPIO86
J1	24	GPIO87_L_DD17	L_DD17	GPIO87
J1	25	GPIO88_L_DD18	L_DD18	GPIO88
J1	27	GPIO89_L_DD19	L_DD19	GPIO89
J1	45	GPIO90_L_DD20	L_DD20	GPIO90
J1	23	GPIO91_L_DD21	L_DD21	GPIO91
J1	15	GPIO92_L_DD22	L_DD22	GPIO92
J1	61	GPIO93_L_DD23	L_DD23	GPIO93

J1	63	TV_OUT1	LUMINANCE	(For future use)
J1	62	TV_OUT2	CHROMA	(For future use)

Analog signals

CONN	PIN	SIGNAL NAME	ALLOCATION	ALTERNATE	REFERENCE
J1	58	ADCIN2	ADCIN2		TPS65950
J1	48	ADCIN3	ADCIN3		TPS65950
J1	40	ADCIN4	ADCIN4		TPS65950
J1	51	ADCIN5	ADCIN5		TPS65950
J1	53	ADCIN6	ADCIN6		TPS65950
J1	64	ADCIN7	ADCIN7		TPS65950
J1	42	PWM0	PWM0		TPS65950
J1	49	PWM1	PWM1		TPS65950
J1	55	GPIO145_GPT10_PWM	GPT10_PWM	GPIO145	
J1	21	GPIO146_GPT11_PWM	GPT11_PWM	GPIO146	
J1	16	GPIO147_GPT8_PWM	GPT8_PWM	GPIO147	
J1	18	GPIO144_GPT9_PWM	GPT9_PWM	GPIO144	
J1	38	AUXLF	AUXLF		TPS65950
J1	41	AUXRF	AUXRF		TPS65950
J1	68	HSOLF	HSOLF		TPS65950
J1	69	HSORF	HSORF		TPS65950
J1	57	MIC_MAIN_MF	MAIN_MF		TPS65950
J1	39	MIC_SUB_MF	SUB_MF		TPS65950

Control signals

CONN	PIN	SIGNAL NAME	ALLOCATION	ALTERNATE	REFERENCE
J1	9	GPIO31_WAKEUP	WAKEUP	GPIO31	
J1	1	NRESPWRON	NRESPWRON		TPS65950
J1	65	POWERON	POWERON		TPS65950
J1	59	SYSEN	SYSEN		TPS65950
J1	52	VBACKUP	VBACKUP		TPS65950
J1	66	VSYSTEM	VSYSTEM		POWER BUS
J1	67	VSYSTEM	VSYSTEM		POWER BUS
J1	50	AGND	AGND		TPS65950
J1	56	GND	GND		
J1	70	GND	GND		
J4	1	VSYSTEM	VSYSTEM		POWER BUS
J4	2	VSYSTEM	VSYSTEM		POWER BUS
J4	3	GND	GND		
J4	33	GND	GND		
J5	22	SYSEN	SYSEN		TPS65950
J5	21	VDDS_1.8	VDDS_1.8		TPS65950
J5	24	VSYSTEM	VSYSTEM		POWER BUS
J5	23	GND	GND		

High speed buses: MMC, SPI, USB Host and OTG

CONN	PIN	SIGNAL NAME	ALLOCATION	ALTERNATE	REFERENCE
J4	40	GPIO12_MMC3_CLK	MMC3_CLK	GPIO12	
J4	23	GPIO13_MMC3_CMD	MMC3_CMD	GPIO13	
J4	26	GPIO18_MMC3_D0	MMC3_D0	GPIO18	
J4	36	GPIO19_MMC3_D1	MMC3_D1	GPIO19	
J4	39	GPIO20_MMC3_D2	MMC3_D2	GPIO20	
J4	31	GPIO17_MMC3_D3	MMC3_D3	GPIO17	
J4	29	GPIO14_MMC3_DAT4	MMC3_DAT4	GPIO14	
J4	38	GPIO23_MMC3_DAT5	MMC3_DAT5	GPIO23	
J4	37	GPIO22_MMC3_DAT6	MMC3_DAT6	GPIO22	
J4	30	GPIO21_MMC3_DAT7	MMC3_DAT7	GPIO21	
J4	47	GPIO150_MMC3_WP	MMC3_WP	GPIO150	
J4	46	4030GP.2/!MMC3_CD	nMMC3_CD		TPS65950
J4	43	GPIO171_SPI1_CLK	SPI1_CLK	GPIO171	
J4	27	GPIO174_SPI1_CS0	SPI1_CS0	GPIO174	
J4	42	GPIO175_SPI1_CS1	SPI1_CS1	GPIO175	
J4	45	GPIO173_SPI1_MISO	SPI1_MISO	GPIO173	
J4	44	GPIO172_SPI1_MOSI	SPI1_MOSI	GPIO172	
J4	41	GPIO114_SPI1_NIRQ	SPI1_NIRQ	GPIO114	
J4	35	USBH_DM	USBH_DM		USB3326
J4	34	USBH_DP	USBH_DP		USB3326
J4	32	USBH_VBUS	USBH_VBUS		USB3326
J4	28	GPIO168_USBH_CPEN	USBH_CPEN	GPIO168	(*) USB HOST ENABLE
J1	37	USBOTG_DM	USBOTG_DM		TPS65950
J1	36	USBOTG_DP	USBOTG_DP		TPS65950
J1	46	USBOTG_ID	USBOTG_ID		TPS65950
J1	54	USBOTG_VBUS	USBOTG_VBUS		TPS65950

GPIO Lines allocated for peripheral resets and interrupts

CONN	PIN	SIGNAL NAME	ALLOCATION	ALTERNATE	REFERENCE
J1	14	GPIO186_GPS_PPS	GPS_PPS	GPIO186	
J1	8	GPIO10_TS_IRQ	TS_IRQ	GPIO10	
J4	25	GPIO176_ETH0_IRQ	ETH0_IRQ	GPIO176	
J4	10	GPIO64_ETH0_NRESET	ETH0_NRESET	GPIO64	
J4	9	GPIO65_ETH1_IRQ1	ETH1_IRQ1	GPIO65	

Memory bus signals

CONN	PIN	SIGNAL NAME	ALLOCATION	ALTERNATE	REFERENCE
J4	58	EM_A1	A1		
J4	11	EM_A2	A2		
J4	59	EM_A3	A3		
J4	61	EM_A4	A4		
J4	13	EM_A5	A5		
J4	57	EM_A6	A6		
J4	14	EM_A7	A7		
J4	12	EM_A8	A8		
J4	62	EM_A9	A9		
J4	60	EM_A10	A10		
J4	56	EM_D0	D0		
J4	53	EM_D1	D1		
J4	15	EM_D2	D2		
J4	17	EM_D3	D3		
J4	19	EM_D4	D4		
J4	21	EM_D5	D5		
J4	51	EM_D6	D6		
J4	49	EM_D7	D7		
J4	54	EM_D8	D8		
J4	55	EM_D9	D9		
J4	16	EM_D10	D10		
J4	18	EM_D11	D11		
J4	20	EM_D12	D12		
J4	52	EM_D13	D13		
J4	50	EM_D14	D14		
J4	22	EM_D15	D15		
J4	70	EM_CLK	CLK		
J4	7	EM_NADV_ALE	NADV_ALE		
J4	65	EM_NBE0	NBE0		
J4	69	EM_NBE1	NBE1		
J4	66	EM_NCS0	NCS0		
J4	64	EM_NCS1	NCS1		
J4	5	EM_NCS4	NCS4		
J4	4	EM_NCS5_ETH0	NCS5_ETH0		
J4	67	EM_NCS6	NCS6		
J4	8	EM_NOE	NOE		
J4	6	EM_NWE	NWE		
J4	63	EM_NWP	NWP		
J4	68	EM_WAIT0	WAIT0		

JTAG SIGNALS

VERSIONS: R2277 - R2606

POINT	X	Y	SIGNAL NAME
TP1	-1424	627	GPIO165_IR_RXD3
TP2	-1593	524	GPIO166_IR_TXD3
TP3	-1035	475	GND
TP4	-1304	164	VSYSTEM
TP5	-1061	175	NTRST
TP6	-806	447	TCK
TP7	-862	291	RTCK
TP8	-1155	531	TMSC
TP9	-1170	219	TDI
TP10	-1175	323	TDO
TP11	-868	181	GPIO11_JTAG_EMU0
TP12	-804	95	GPIO31_JTAG_EMU1

Revisions

V 1.1

- 1) Page 1: Reference to TI OMAP35xx for complete list of alternate uses.
- 2) Page 1: Reference to TI OMAP35xx usage of PoP signals.
- 3) Page 2: Identified CBB package and use of GPMC and SDRC on-board
- 4) Page 3: GPIO174_SPI1_CS0 *IS NOT* reserved for future use in an SPI1 connection to a bluetooth module.
- 5) Page 7: Corrected signal names to reflect GPIO 10 and GPIO 186.

V 1.2

1. Page 3: Corrected GPIO_126:129 to be GPIO_120:125
2. Page 3: Corrected GPIO164 for GPIO16_W2W_nRESET

V 1.3

1. Page 6: Corrected GPIO31_WAKEUP (It can be used as a GPIO)
2. Page 9: Added JTAG signals table

V 1.4

1. Page 3: Description of LEDs on board