


	1	2	3	4	5	6	7	8																
A	<table><tr><td>Table of Contents</td></tr><tr><td>Sheet 1: Title</td></tr><tr><td>Sheet 2: Notes / Block Diagram / Mechanical</td></tr><tr><td>Sheet 3: OSD62-PM Power</td></tr><tr><td>Sheet 4: OSD62-PM GND / IO Power</td></tr><tr><td>Sheet 5: OSD62-PM Signals</td></tr><tr><td>Sheet 6: USB-C / CSI / Power In / Osc</td></tr><tr><td>Sheet 7: Power Management</td></tr><tr><td>Sheet 8: JTAG / Boot Mode / microSD / etc.</td></tr><tr><td>Sheet 9: IO Headers</td></tr><tr><td>Sheet 10: LVDS Connector</td></tr><tr><td>Sheet 11: Blank</td></tr><tr><td>Sheet 12: Design Notes</td></tr></table>				Table of Contents	Sheet 1: Title	Sheet 2: Notes / Block Diagram / Mechanical	Sheet 3: OSD62-PM Power	Sheet 4: OSD62-PM GND / IO Power	Sheet 5: OSD62-PM Signals	Sheet 6: USB-C / CSI / Power In / Osc	Sheet 7: Power Management	Sheet 8: JTAG / Boot Mode / microSD / etc.	Sheet 9: IO Headers	Sheet 10: LVDS Connector	Sheet 11: Blank	Sheet 12: Design Notes	<table><tr><td>Octavo Systems OSD62-PM-BRK</td></tr><tr><td>(c) Copyright, Octavo Systems LLC, 2024-2025. All Rights Reserved.</td></tr><tr><td>THERE IS NO WARRANTY FOR THIS DESIGN, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE DESIGN *AS IS* WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS A FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE DESIGN IS WITH YOU. SHOULD THE DESIGN PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.</td></tr></table>				Octavo Systems OSD62-PM-BRK	(c) Copyright, Octavo Systems LLC, 2024-2025. All Rights Reserved.	THERE IS NO WARRANTY FOR THIS DESIGN, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE DESIGN *AS IS* WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS A FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE DESIGN IS WITH YOU. SHOULD THE DESIGN PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
Table of Contents																								
Sheet 1: Title																								
Sheet 2: Notes / Block Diagram / Mechanical																								
Sheet 3: OSD62-PM Power																								
Sheet 4: OSD62-PM GND / IO Power																								
Sheet 5: OSD62-PM Signals																								
Sheet 6: USB-C / CSI / Power In / Osc																								
Sheet 7: Power Management																								
Sheet 8: JTAG / Boot Mode / microSD / etc.																								
Sheet 9: IO Headers																								
Sheet 10: LVDS Connector																								
Sheet 11: Blank																								
Sheet 12: Design Notes																								
Octavo Systems OSD62-PM-BRK																								
(c) Copyright, Octavo Systems LLC, 2024-2025. All Rights Reserved.																								
THERE IS NO WARRANTY FOR THIS DESIGN, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE DESIGN *AS IS* WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS A FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE DESIGN IS WITH YOU. SHOULD THE DESIGN PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.																								
B																								
C																								
D																								
E																								
	1	2	3	4	5	6	7	8																

OSD62-PM BRK

Version 1D



Octavo Systems LLC.	
OSD62-PM-BRK	
5/19/2025 9:22 AM	
Sheet: 1/12	Rev: 1D

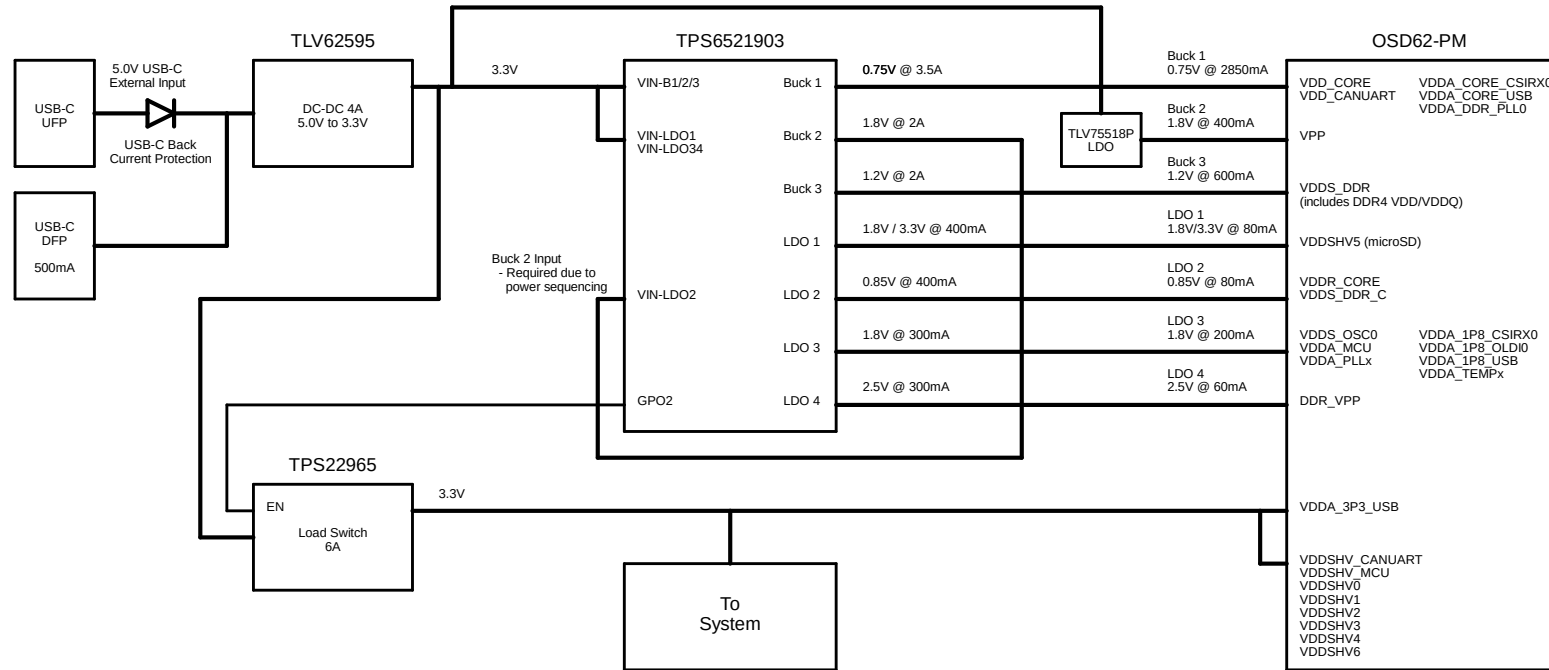
OSD62-PM BRK

Version 1D



Octavo Systems LLC.	
OSD62-PM-BRK	
5/19/2025 9:22 AM	
Sheet: 1/12	Rev: 1D

Power Block Diagram



USB-C Power Discussion

The USB-C UFP uses 5.1k pull down resistors on the CC pins to request up to 3A from the DFP. However, this board does not check the voltage of the CC pins to understand the current provided by the DFP port. The USB-C DFP port on this board uses 56k ohm pull up resistors to advertise 500mA of current available. It is the responsibility of the user to guarantee that there is enough current to support both the components on the board as well as any downstream USB devices.

I2C Table

I2C0	
ADDRESS	DEVICE
0x13	TPS65219
0x50	EEPROM
0x51	ADC121C027
0x52	ADC121C027

Mechanical & Misc

Fiducials



Octavo Systems LLC.	
OSD62-PM-BRK	
5/19/2025 9:22 AM	
Sheet: 2/12	Rev: 1D

[illegible]

	0201				0402	
	0.01uF	0.1uF	1uF	2.2uF	4.7uF	10uF
VDD_CORE		0/3	1/0		1/0	0/1
VDDA_CORE_CSIRX0	1/0	0/1			0/0	
VDDA_CORE_USB	1/0	0/1				
VDD_CANUART	1/0	0/1				
VDDS_DDR		1/3	1/0		1/0	1/0
VDDS_DDR_C						
VDDR_CORE		0/3	1/0		1/0	
VDDA_1P8_OLDI0	1/0	0/1	0/1			
VDDA_1P8_CSIRX0	1/0	0/1			0/1	
VDDA_1V8_USB	1/0	0/1				
VDDA_1V8_MCU	1/0					
VDDA_1V8_PLL0	1/0					
VDDA_1V8_PLL1	1/0					
VDDA_1V8_PLL2	1/0					

Internal PM / OSD62 BRK Board

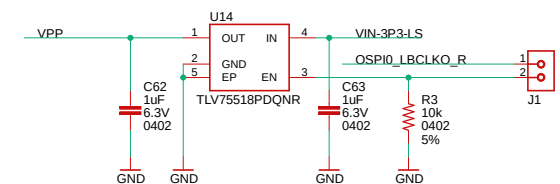
See Documents:

- <https://www.ti.com/lit/an/sprac76f/sprac76f.pdf> (see page 29)
- <https://www.ti.com/lit/zip/spar001> (See Sheet 14)

Maximum Current Requirements:

- <https://www.ti.com/lit/an/sprada6/sprada6.pdf>

VPP LDO



Octavo Systems LLC.

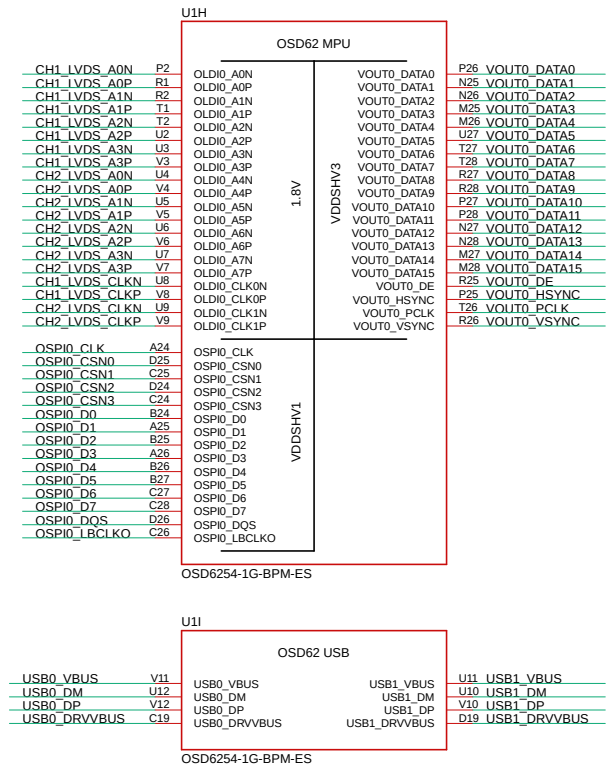
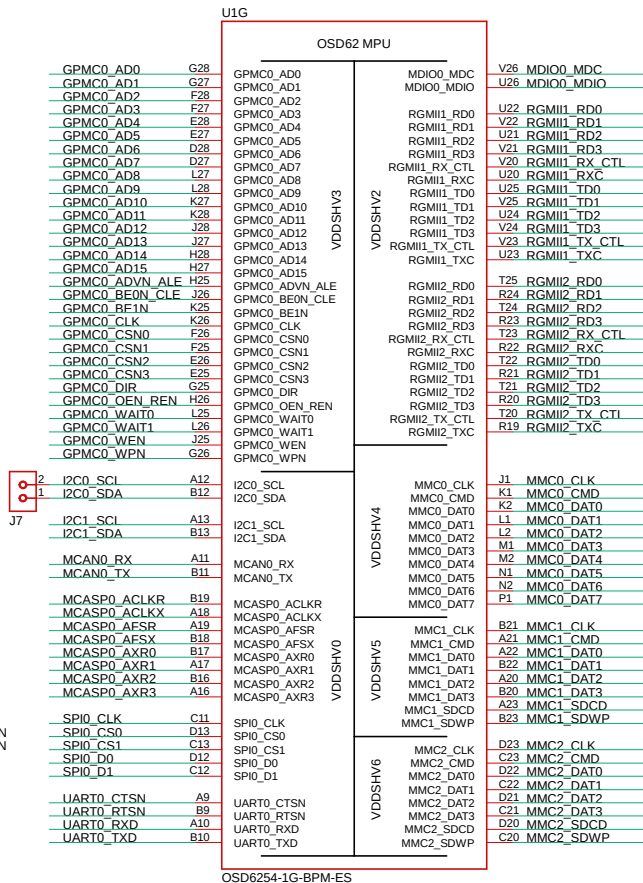
OSD62-PM-BRK

5/19/2025 9:22 AM

Sheet: 3/12

Rev: 1D

Test Points for unused control signals.



Octavo Systems LLC.

OSD62-PM-BRK

5/19/2025 9:22 AM

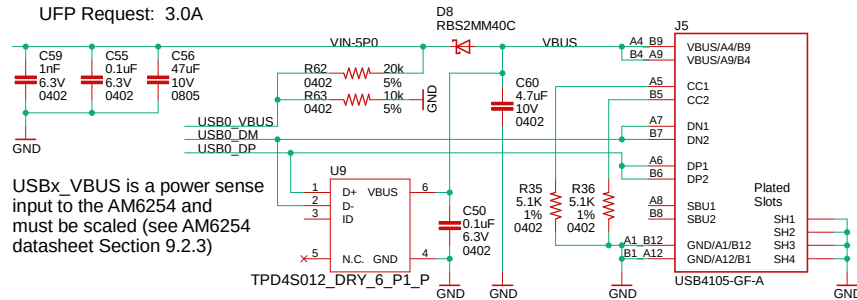
Sheet: 5/12

Rev: 1D

USB-C Connector

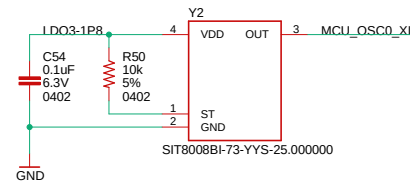
Only supports USB2.0; Cannot supply power
UFP Request: 3.0A

USB-C Back Current Protection
Allows USB connection when
board is externally powered.
(Max Vf = 400mV @ 2A)

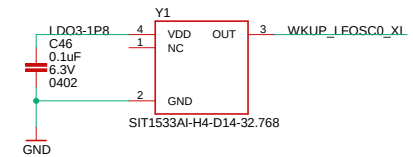


Oscillators

OSD62x 25 MHz Oscillator
1.8V only



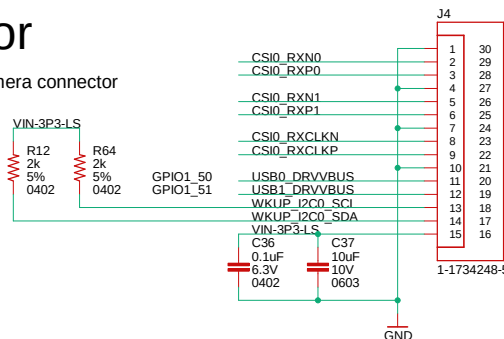
OSD62x 32 kHz Oscillator
1.8V only



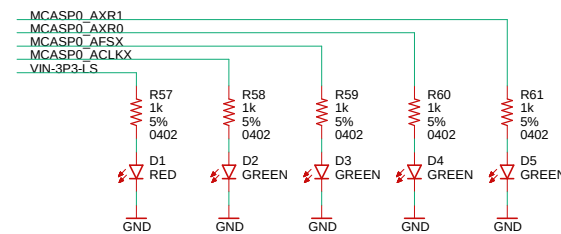
CSI Connector

Compatible with Raspberry Pi camera connector

CSI length requirements:
- Inter pair: 0.15mm
- Intra pair: 1.5mm

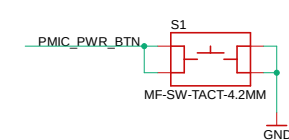


LEDs



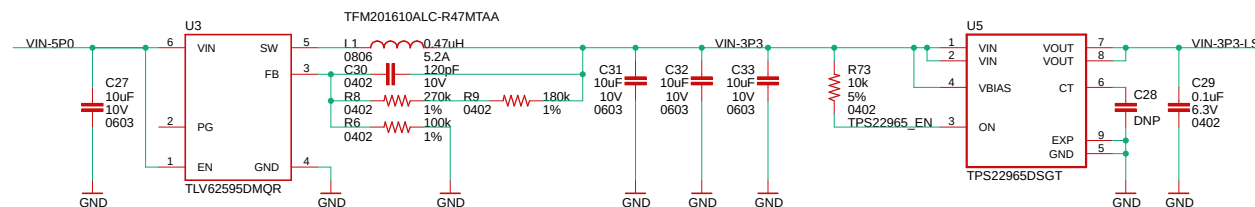
USR2 USR3 USR1 USR0

Power Button



3.3V DC-DC Converter

Main 3.3V Input

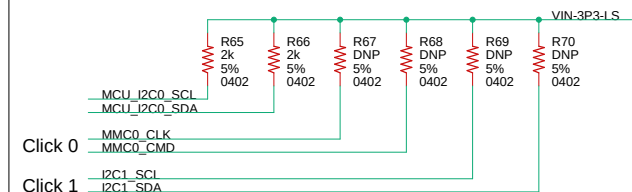


4A DC-DC converter

6A Load Switch

I2C Pull Ups

These are not necessary for designs that do not use the I2C busses.
No pull ups for the Click I2C Interfaces, per spec.
Footprints added for convenience.

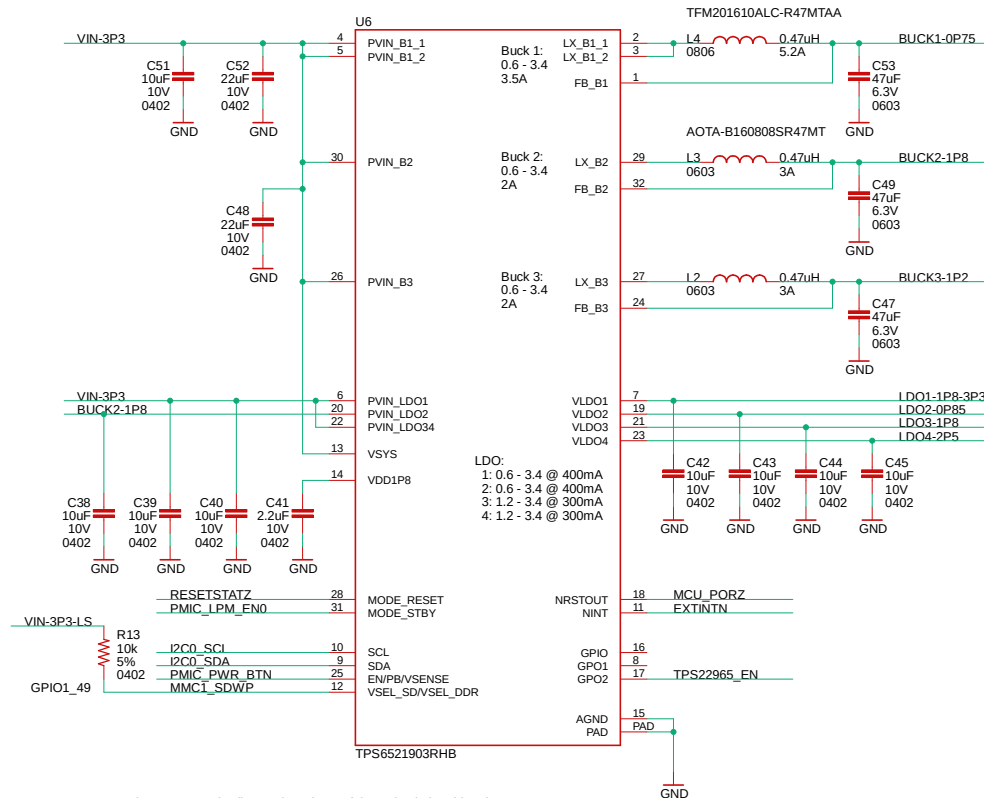


Octavo Systems LLC.	
OSD62-PM-BRK	
5/19/2025 9:22 AM	
Sheet: 6/12	Rev: 1D

Power Management

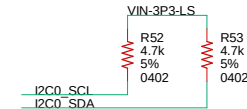
See <https://www.ti.com/lit/an/slvafd0a/slvafd0a.pdf>
- Using TPS6521903

I2C Address: 0x30 (7-bit)

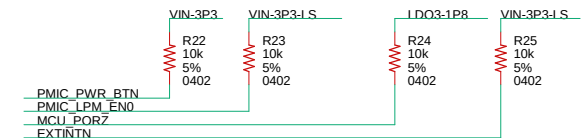


PMIC_VSEL_SD requires an external pull up to the voltage of the IO bank that drives it.
This is VDDSHV0, i.e. VIN-3P3-LS, (MMC1_SDWP) for this design.

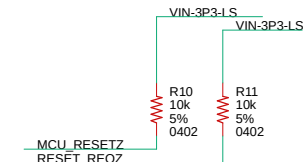
I2C0 Pull-up Resistors



Pull-up Resistors



AM62 Reset Resistors



Octavo Systems LLC.

OSD62-PM-BRK

5/19/2025 9:22 AM

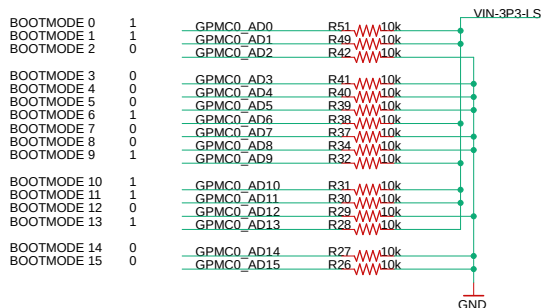
Sheet: 7/12

Rev: 1D

Boot Mode

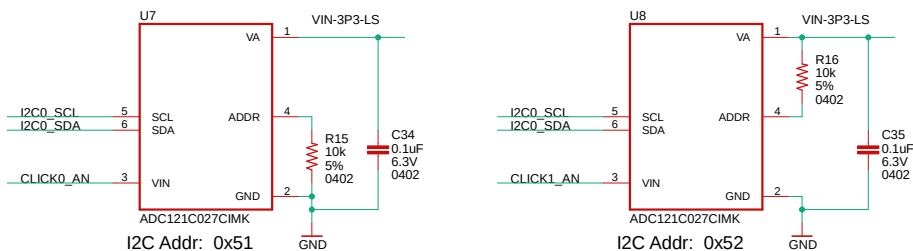
Boot Modes Decode:

1, PLL Config	B[2:0]	= 0b011	: Ref Clock = 25MHz
2, Primary Boot	B[9:3]	= 0b1001000	: SDCard FS Boot
3, Backup Boot	B[13:10]	= 0b1011	: UART Boot



ADCs

For Click Connectors

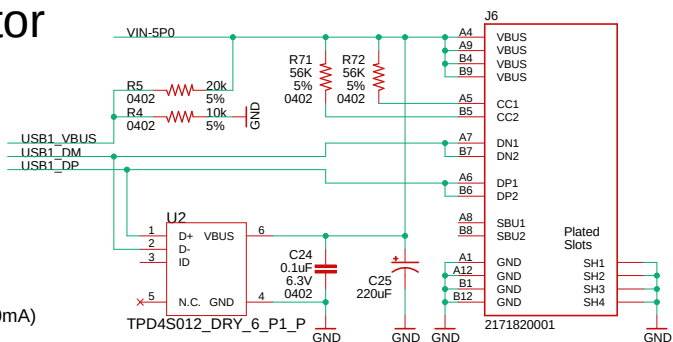


USB Connector

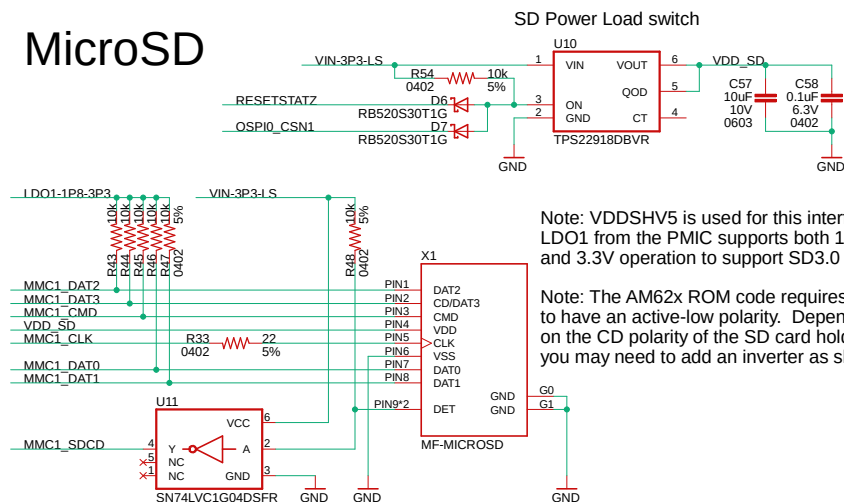
Vertical USB Host Port (Type-C)

USBx_VBUS is a power sense input to the AM6254 and must be scaled (see AM6254 datasheet Section 9.2.3)

DFP Advertisement:
Default USB Power (500mA/900mA)



MicroSD

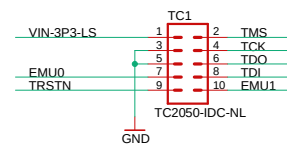


Note: VDDSHV5 is used for this interface.
LDO1 from the PMIC supports both 1.8V
and 3.3V operation to support SD3.0 speed

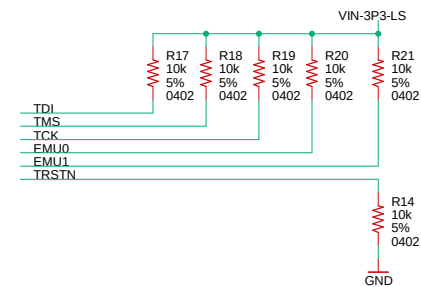
Note: The AM62x ROM code requires CD to have an active-low polarity. Depending on the CD polarity of the SD card holder you may need to add an inverter as shown.

JTAG Headers

Tag Connect

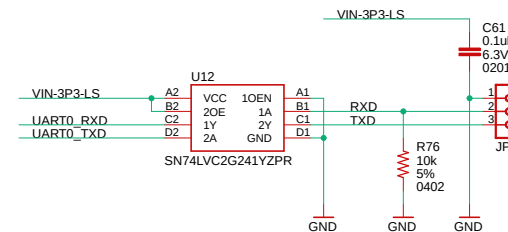


AM62 JTAG Resistors



UART Header

Buffer added to prevent back current



Octavo Systems LLC.

OSD62-PM-BRK

5/19/2025 9:22 AM

Sheet: 8/12

Rev: 1D

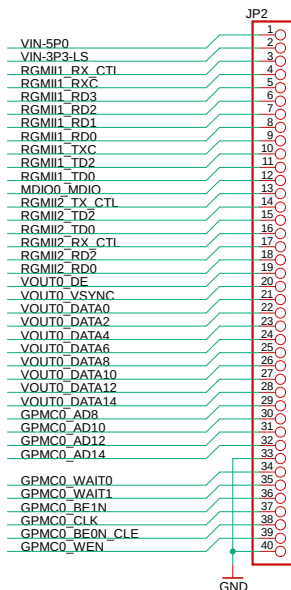
IO Headers

Connectors support two (2) Mikroe Click Interfaces on the inner headers (East / West)

SOUTH Connector

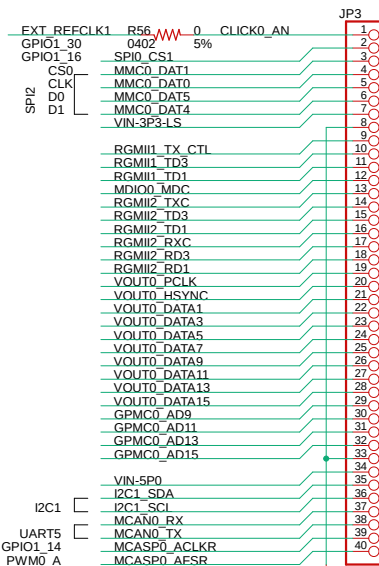
WEST

1

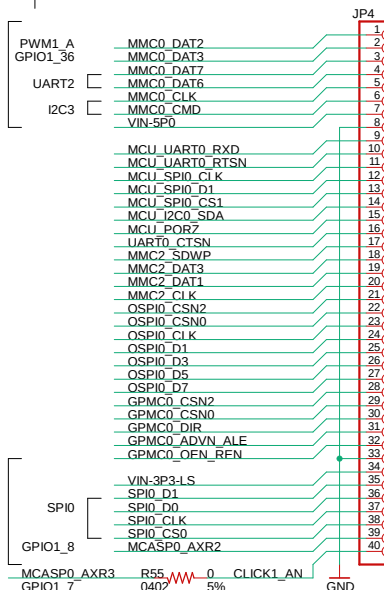


PA

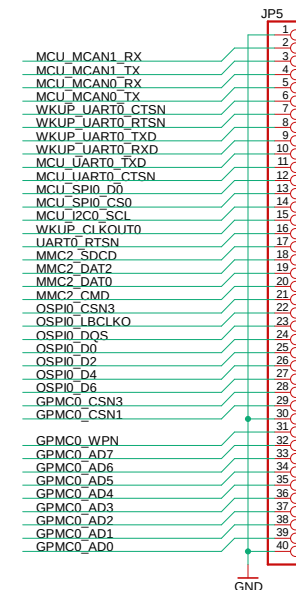
PB



NORTH Connector



PC



PD

Click Modules come with I2C pull ups on-board.
Footprints added on I2C1 and I2C3 for convenience (see other page).

GPMC[0:15] are used as boot mode pins and have default pull up / pull down behavior. See "Boot Mode" section for more information.

To meet the Mikroe Click standard, a resistor mux is used to add GPIO functionality to the CLICK0_AN and CLICK1_AN pins. This is generally not needed in a design based on the OSD62-PM-BRK.



Octavo Systems LLC.	
OSD62-PM-BRK	
5/19/2025 9:22 AM	
Sheet: 9/12	Rev: 1D

OLDI / LVDS Display Interface

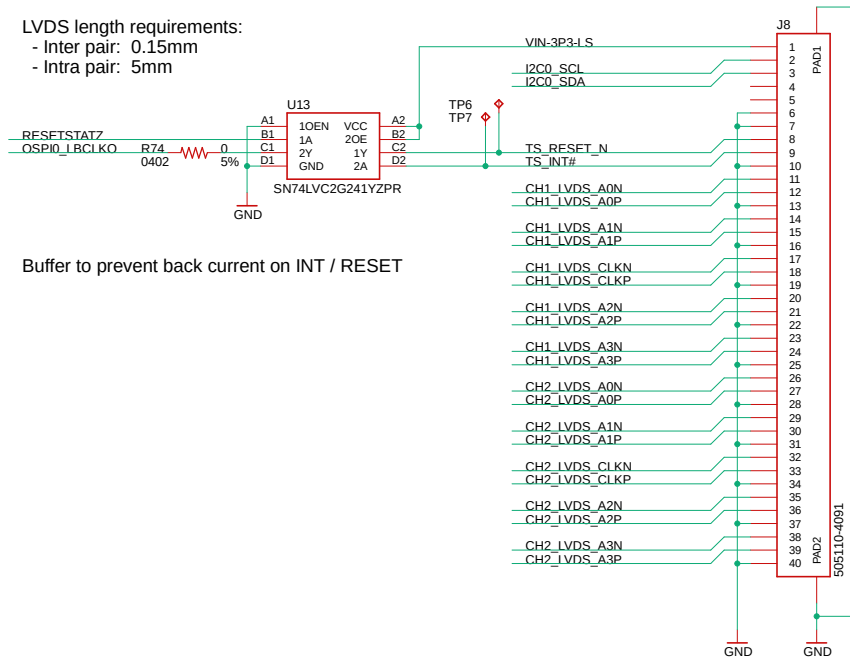
Based on AM62x SKEVM with Fulton PMIC

Supports: SK-LCD1 Interface (<https://www.ti.com/tool/SK-LCD1>)

Need a 40 pin FPC cable 0.5mm pitch (A Type) cable to connect to the screen.

LVDS length requirements:

- Inter pair: 0.15mm
- Intra pair: 5mm



Octavo Systems LLC.	
OSD62-PM-BRK	
5/19/2025 9:22 AM	
Sheet: 10/12	Rev: 1D

This Page Intentionally Left Blank

Design Notes

Revision 1A

- Initial Revision - Pre-Production

Revision 1B

- Fixed issue with USB connector shorting power and ground
- Updated SD card connections to fix UHS-I speed transition
- Updated PC / PD headers

Revision 1C

- Added inverter on microSD card CD pin
- Added back current protection for USB-C UFP connector
- Added LVDS connector
- Moved all components to top side of the board (except LVDS connector)

Revision 1D

- Added buffer for UART
- Added buffer for LVDS
- Updated LVDS documentation
- Added LDO for VPP per AM62x SKEVM



Octavo Systems LLC.

OSD62-PM-BRK

5/19/2025 9:22 AM

Sheet: 12/12 Rev: 1D