

EVM User's Guide: UCD91160EVM

UCD91160EVM User's Guide



Description

The UCD91160EVM development kit is an easy-to-use evaluation module (EVM) for the UCD91160 Power Sequencer device. The EVM includes everything needed to start developing power sequencer solutions alongside the TI Sequencer Studio GUI. This EVM features the UCD91160, as well as 4 on board LDOs to quickly get started sequencing multiple power rails. The EVM also features LEDs to easily view signal states, footprints for RC filters for margining and for power rail monitoring. Communication with the EVM is easily accomplished using PMBus.

Get Started

1. Order the latest version of the UCD91160EVM on TI.com. The revision number will be clearly marked on the front side of the board.
2. Download the latest version of the TI Sequencer Studio GUI, or use the latest online version by visiting dev.ti.com/guicomposer
3. Review the schematic and hardware notes featured in this user's guide.

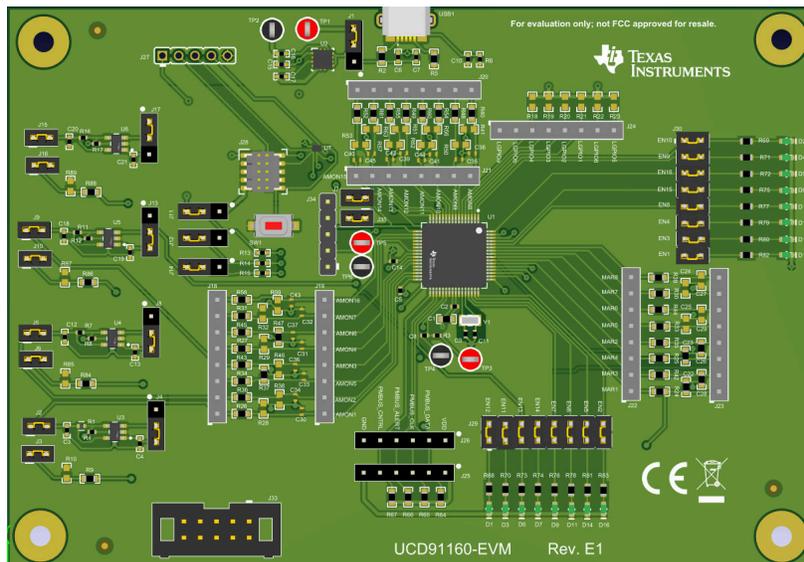
4. Begin experimenting with the EVM and GUI, start producing your first power sequencer designs on the UCD91160 device.

Features

- UCD91160SPM device mounted on board
- USB power supply connector
- Easy to access pin headers for every signal on the board
- 4x LDOs for quickly prototyping various power rails: 3.3V, 2.5V, 1.8V, and 1.2V.
- Jumpers to easily enable or disable each on board LDO
- RC filters for margining feedback, footprints for additional passive elements, jumpers to connect the LDO output to the monitoring pins and to off board devices as well.
- Pin header for PMBus connections
- Easy to use jumpers for PMBus address selection, with up to 8 selectable addresses
- On-board LDO to power UCD91160
- Test points for checking the voltage reference, power supply pins, and external power supply monitoring

Applications

Section TBD



1 Evaluation Module Overview

1.1 Introduction

The UCD91160EVM ships as a singular PCB. It can be utilized with a micro USB or external power supply. Communicating with the device requires a PMBus interface. We recommend using TI's USB-TO-GPIO2 tool to communicate with this device.

1.2 Kit Contents

- 1x UCD91160EVM

1.3 Specification

The UCD91160EVM is designed to enable users to easily prototype power sequencer designs for the UCD91160 device line. The EVM enables all functionality designed into the device, with headers for monitoring signals, enable pins, margining pins, LGPOs, and more. The EVM also has easy to use footprints to add RC filters to the margining circuit and voltage dividers for the monitoring pins. The monitoring pins have headers available to probe the signal both before and after voltage division. The margining pins have similar headers available to probe the margining signal before and after filtering. The enable pins have headers to probe and they have LEDs connected to allow easy viewing of the signal or more detailed viewing on a probe. The EVM also allows users to supply power with a micro-USB, an external 5V supply, an external 3.3V supply, or via the USB-TO-GPIO2 through its dedicated header. Dedicated test points are included in the board as well to easily check the power supply, voltage reference, and power pins to the device.

The EVM is designed to pair with the TI Sequencer Studio GUI to allow users to quickly get started with sequencer designs. We recommend using the USB-to-GPIO2 device to connect the EVM to the GUI and send new configurations to the UCD91160 device.

1.4 Device Information

Key Devices on this EVM:

- UCD91160 - TI power sequencer IC
- TPS73533 - TI LDO Regulator
- TLV75801 - TI Linear Voltage Regular ICs (4 included on EVM)

2 Hardware

2.1 Power Requirements

The UCD91160 has a recommended positive voltage supply value of 2.9V to 3.6V. The device also has requirements for a bulk capacitor and decoupling capacitor between VDD and VSS, which are already populated on the EVM. The BPCAP pin also requires a 0.47uF capacitor connected to ground which is populated on the EVM.

To actually supply the device with power, there are 2 options:

1. Micro-USB cable
2. External power supply
3. USB-TO-GPIO2

The Micro-USB connection includes a path through an LDO to step the voltage down to the correct operating voltage for the UCD91160 device.

When using the external power supply, you can utilize 5V and configure the device jumpers to continue to utilize the same LDO as the Micro-USB supply. Alternatively you can supply the device and bypass the LDO using the jumpers. Please check the jumper configuration section for specifics info on how to configure these correctly.

2.2 Setup

Setup for this device should be minimal out of the box. You can check your jumpers to ensure that they are configured for your selected power supply, then you should be able to plug the device in and power on. The next step is to connect your PMBus interface to begin communicating with the device. At this stage we recommend starting up your TI Sequencer Studio GUI, and plugging in your USB-TO-GPIO2 device in order to get started. At this point you are ready to start sequencing.

2.3 Jumper Information

Table 2-1. Jumper Descriptions

Jumper Label	Description
J1	5V Power Configuration Jumper - Selects power supply for the device using a shunt jumper. 1-2 selects the Micro-USB connector as the power source. 2-3 selects an external 5V power supply.
J2	LDO Output jumper - Used to connect the 3.3V LDO output to the monitoring circuit.
J3	LDO Feedback jumper - Used to connect the UCD91160 margining output to the feedback pin of the 3.3V LDO
J4	LDO Enable configuration - Allows the user to select how the 3.3V LDO is enabled using a shunt jumper. 1-2 selects the EN1 signal to enable the LDO. 2-3 selects the 5V power rail to enable the LDO at all times.
J5	LDO Output jumper - Used to connect the 2.5V LDO output to the monitoring circuit.
J6	LDO Feedback jumper - Used to connect the UCD91160 margining output to the feedback pin of the 2.5V LDO
J7	VREF Configuration - This jumper allows the user to configure the VREF circuitry depending on whether internal or external VREF is used. When using internal VREF, this jumper should be closed to make use of the VREF bypass capacitor, C14. When using external VREF, this jumper should be left open.
J8	LDO Enable configuration - Allows the user to select how the 2.5V LDO is enabled using a shunt jumper. 1-2 selects the EN2 signal to enable the LDO. 2-3 selects the 5V power rail to enable the LDO at all times.

Table 2-1. Jumper Descriptions (continued)

Jumper Label	Description
J9	LDO Output jumper - Used to connect the 1.8V LDO output to the monitoring circuit.
J10	LDO Feedback jumper - Used to connect the UCD91160 margining output to the feedback pin of the 1.8V LDO
J11	PMBus Address selector - PMBus ADDR2, used to select the UCD91160's PMBus address. See table below for the device address corresponding to each configuration.
J12	PMBus Address selector - PMBus ADDR1, used to select the UCD91160's PMBus address. See table below for the device address corresponding to each configuration.
J13	LDO Enable configuration - Allows the user to select how the 1.8V LDO is enabled using a shunt jumper. 1-2 selects the EN3 signal to enable the LDO. 2-3 selects the 5V power rail to enable the LDO at all times.
J14	PMBus Address selector - PMBus ADDR0, used to select the UCD91160's PMBus address. See table below for the device address corresponding to each configuration.
J15	LDO Output jumper - Used to connect the 1.2V LDO output to the monitoring circuit.
J16	LDO Feedback jumper - Used to connect the UCD91160 margining output to the feedback pin of the 1.2V LDO
J17	LDO Enable configuration - Allows the user to select how the 1.2V LDO is enabled using a shunt jumper. 1-2 selects the EN4 signal to enable the LDO. 2-3 selects the 5V power rail to enable the LDO at all times.

2.4 PMBus Address Configuration

PMBus Address Selection

PMBUS_ADDR2	PMBUS_ADDR1	PMBUS_ADDR0	UCD91160 PMBUS Address
L	L	L	0x11
L	L	H	0x13
L	H	L	0x17
L	H	H	0x31
H	L	L	0x33
H	L	H	0x71
H	H	L	0x73
H	H	H	0x77

2.5 Header Information

Table 2-2. Pin Headers

Pin Header Label	Description
J18	Monitoring pins pre-filtering and division. If you'd like to connect external circuitry to view the monitoring value before filtering, use these pins. They line up with the labeled device monitoring pin to the right in J19. This jumper contains MON1 through MON7, and MON16.

Table 2-2. Pin Headers (continued)

Pin Header Label	Description
J19	Monitoring pins post-filtering and division. If you'd like to connect external circuitry to the monitoring pins after filtering, use these pins. These are labeled with the device pin they connect to. This jumper contains MON1 through MON7, and MON16.
J20	Monitoring pins pre-filtering and division. If you'd like to connect external circuitry to view the monitoring value before filtering, use these pins. They line up with the labeled device monitoring pin below in J21. This jumper contains MON8 through MON15
J21	Monitoring pins post-filtering and division. If you'd like to connect external circuitry to the monitoring pins after filtering, use these pins. These are labeled with the device pin they connect to. This jumper contains MON8 through MON15.
J22	Margining output pre-filtering. These pins are available for connecting external circuitry to the raw PWM outputs from the margining pins. This header contains MAR1 through MAR8.
J23	Margining output post-filtering. These pins are available for connecting external circuitry to the filtered margining signals. Each pin lines up with the labeled pins to the left in J22. This header contains MAR 1 through MAR8.
J24	LGPO breakout header - this header pins out the LGPO pins. Note that directly above are footprints to add pull up resistors.
J25	PMBus Header - pins out all PMBus signals. Note the adjacent 2.2kΩ pull up resistors on all 4 PMBus pins. Also note that VDD and GND are pinned out on this header.
J26	Secondary PMBus Header - pins out all PMBus signals. Having two of these headers (see J25) allows one to serve as an input and the other to allow for probing or wiring to a second board.
J29	Enable pin header - exposes ENx pins, allows the user to easily connect to the LEDs, or to disconnect the shunt jumper to allow connection to external circuitry. This header includes EN2, EN5, EN6, EN7, EN11, EN12, EN13, EN14.
J30	Enable pin header - exposes ENx pins, allows the user to easily connect to the LEDs, or to disconnect the shunt jumper to allow connection to external circuitry. This header includes EN1, EN3, EN4, EN8, EN9, EN10, EN15, EN16.
J33	USB-TO-GPIO2 header - Allows for easy connection to TI's USB-TO-GPIO2 device, the recommended tool for interfacing the UCD91160EVM with the TI Sequencer Studio GUI.
J34	Special Function Header - includes the SYNC_CLK for cascading devices to utilize the Sync Clock, and includes the pin headers for VREF+ and VREF-.

2.6 Push Buttons

The only push button available on this device is SW1. This push button is used to reset the UCD91160 device. Note that the RST signal is active low.

2.7 Interfaces

The UCD91160 device must utilize the PMBus interface. TI recommends utilizing the USB-TO-GPIO2 device in order to communicate with the UCD91160. By connecting the USB-TO-GPIO2 device to the J33 header, you can easily interface the TI Sequencer Studio GUI with the UCD91160EVM.

You may also utilize another PMBus host to interface with the device. Please review the [PMBus User's Guide](#) for more information on manually interfacing with the UCD91160EVM.

2.8 Debug Information

The UCD91160EVM utilizes the TI Sequencer Studio GUI in order to apply new configurations to the device, allowing for debug on the EVM.

In order to debug designs using the EVM, we recommend using an external logic analyzer or oscilloscope to probe the device pins and monitor whether the intended voltage sequencing is being produced on the device. The EVM also has LEDs for a convenient high level visual aid for simple signals like the enable pins on the device.

The EVM also pins out each step of the margining, filtering, LDO inputs and outputs, in order to provide many viewpoints for the device functionality.

2.9 Test Points

The UCD91160EVM offers multiple test points to allow effective monitoring of some on board signals. These test points are described in the table below.

Table 2-3.

Test Point Label	Description
TP1	5V external power supply
TP2	GND for external power supply
TP3	UCD91160 VDD
TP4	UCD91160 VSS
TP5	UCD91160 VREF+
TP6	UCD91160 VREF-

3 Software

3.1 Software Description

Software relating to this EVM is limited to the TI Sequencer Studio GUI, which has a separate GUI users guide. Please refer to this document for detailed descriptions of the GUI functionality.

3.2 GUI Installation

The Sequencer Studio GUI can be downloaded from TI.com, or can be accessed using the GUI composer gallery on dev.ti.com.

3.3 Programming Options

In order to program new configurations to your UCD91160 on the UCD91160EVM, we recommend using the USB-TO-GPIO2 device, sold separately on ti.com.

4 Hardware Design Files

4.1 Schematics

Page 1 of EVM Schematic

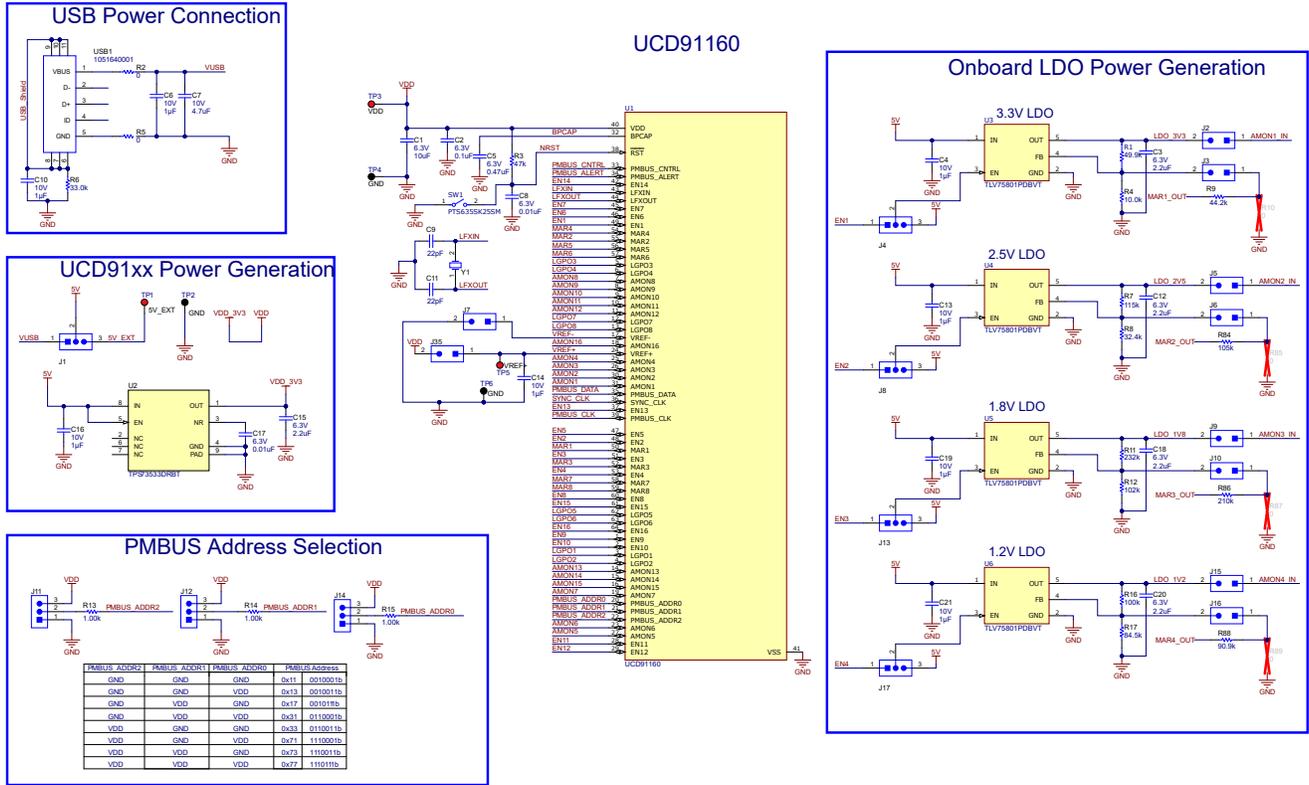


Figure 4-1. UCD91160EVM Schematic

Page 2 of the EVM Schematic

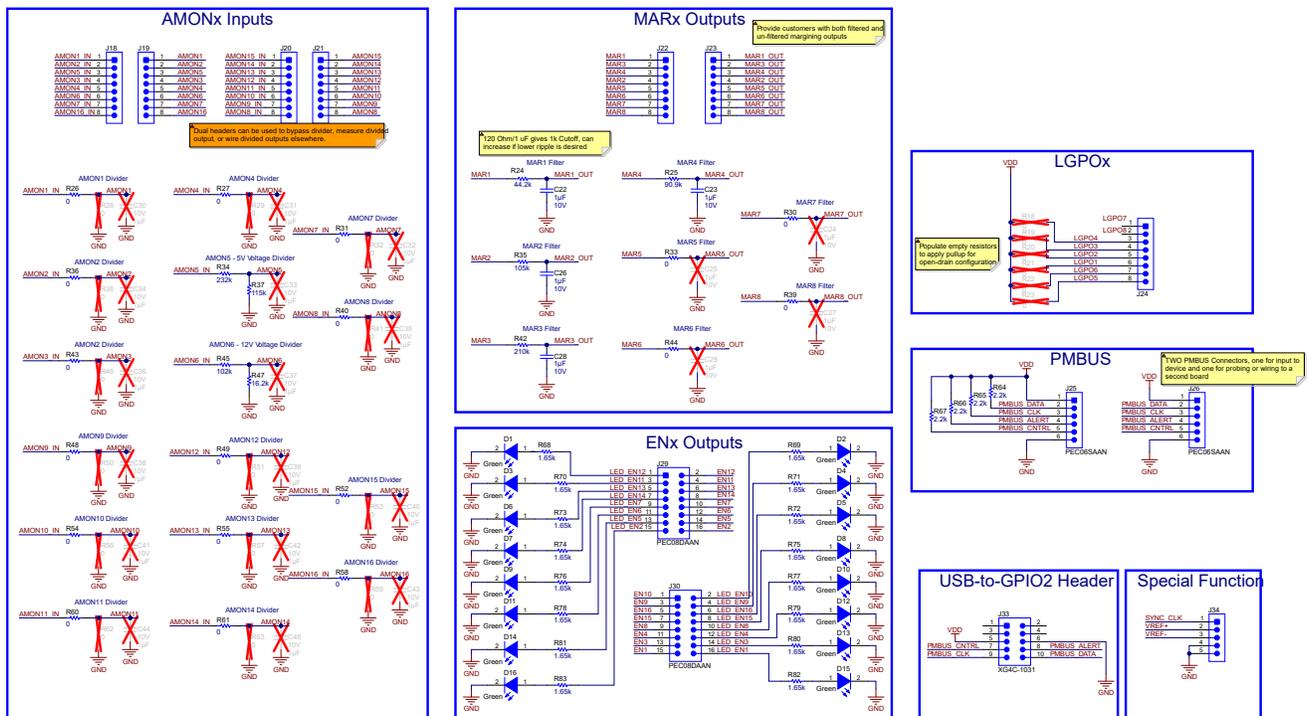


Figure 4-2. UCD91160EVM Schematic

4.2 PCB Layouts

High level diagram showing component layout for UCD91160EVM

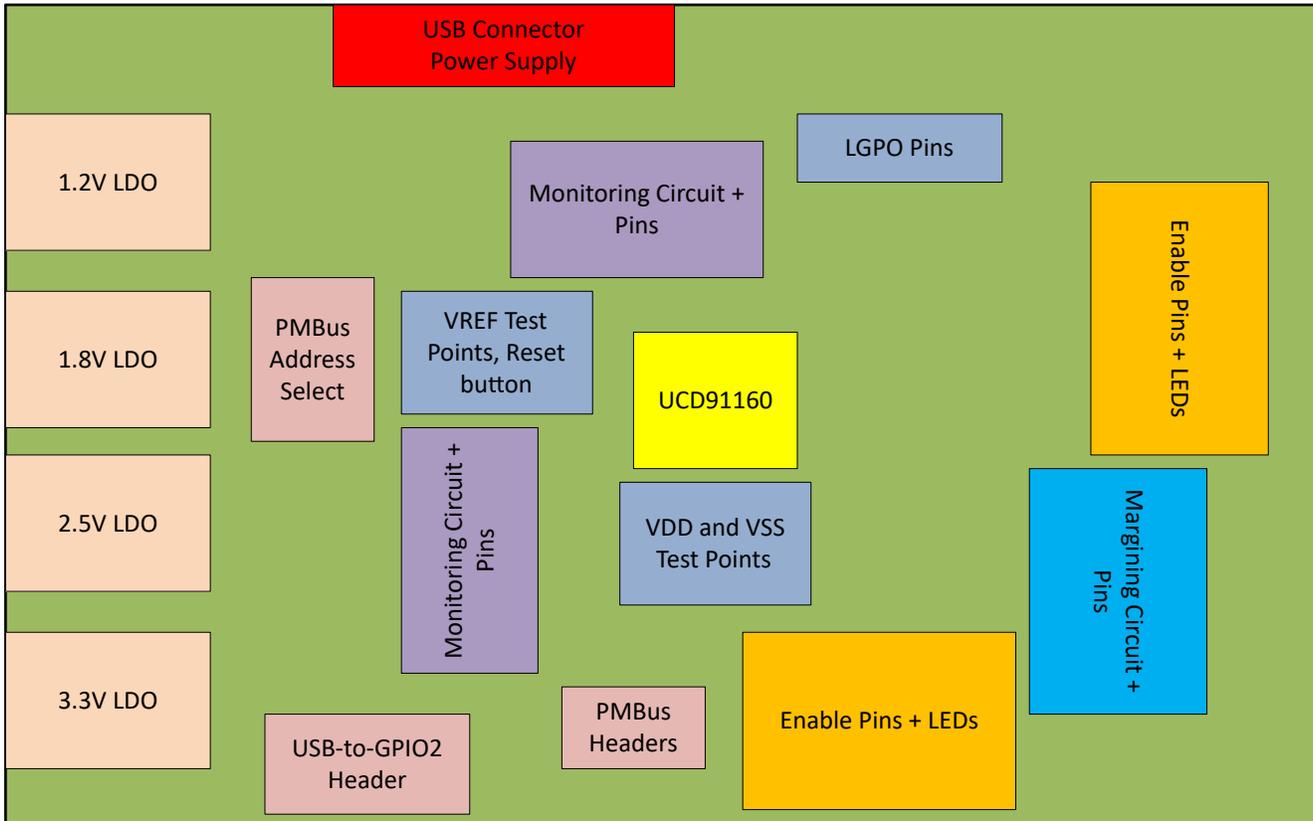


Figure 4-3. UCD Block Layout

4.3 Bill of Materials (BOM)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
C1	1	10uF	CAP, CERM, 10 uF, 6.3 V, +/- 20%, X5R, 0603	0603	GRM188R60J106ME84	MuRata		
C2	1	0.1uF	CAP, CERM, 0.1 uF, 6.3 V, +/- 10%, X5R, 0402	0402	GRM155R60J104KA01D	MuRata		
C3, C12, C15, C18, C20	5	2.2uF	CAP, CERM, 2.2 uF, 6.3 V, +/- 10%, X5R, 0402	0402	GRM155R60J225KE95D	MuRata		
C4, C6, C10, C13, C14, C16, C19, C21	8	1uF	CAP, CERM, 1 uF, 10 V, +/- 10%, X7S, AEC-Q200 Grade 1, 0402	0402	GRT155C71A105KE13D	MuRata		
C5	1	0.47uF	CAP, CERM, 0.47 uF, 6.3 V, +/- 10%, X5R, 0402	0402	GRM155R60J474KE19D	MuRata		

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
C7	1	4.7uF	CAP, CERM, 4.7 uF, 10 V, +/- 20%, X5R, 0402	0402	GRM155R61A475MEAAD	MuRata		
C8, C17	2	0.01uF	CAP, CERM, 0.01 uF, 6.3 V, +/- 10%, X5R, 0402	0402	GRM155R60J103KA01D	MuRata		
C9, C11	2	22pF	CAP, CERM, 22 pF, 50 V, +/- 5%, C0G/NP0, 0402	0402	GRM1555C1H220JA01D	MuRata		
C22, C23, C26, C28	4	1uF	CAP, CERM, 1 uF, 10 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	0603	LMK107B7105KAHT	Taiyo Yuden		
D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16	16	Green	LED, Green, SMD	1.7x0.65x0.8 mm	LG L29K-G2J1-24-Z	OSRAM		
J1, J4, J8, J11, J12, J13, J14, J17	8		Header, 100mil, 3x1, Tin, TH	Header, 3 PIN, 100mil, Tin	PEC03SAAN	Sullins Connector Solutions		
J2, J3, J5, J6, J7, J9, J10, J15, J16, J35	10		Header, 100mil, 2x1, Tin, TH	Header, 2 PIN, 100mil, Tin	PEC02SAAN	Sullins Connector Solutions		
J18, J19, J20, J21, J22, J23, J24	7		Header, 100mil, 8x1, Tin, TH	Header, 8x1, 100mil, TH	PEC08SAAN	Sullins Connector Solutions		
J25, J26	2		Header, 100mil, 6x1, Tin, TH	TH, 6-Leads, Body 608x100mil, Pitch 100mil	PEC06SAAN	Sullins Connector Solutions		
J29, J30	2		Header, 2.54 mm, 8x2, Tin, Vertical, TH	Header, 2.54 mm, 8x2, TH	PEC08DAAN	Sullins Connector Solutions		
J33	1		Header (shrouded), 100mil, 5x2, Gold, TH	TH, 10-Leads, Body 8.5x20mm, Pitch 2.54mm	XG4C-1031	Omron Electronic Components		
J34	1		Header, 2.54mm, 5x1, Tin, TH	Header, 2.54mm, 5x1, TH	PEC05SAAN	Sullins Connector Solutions		
R1	1	49.9k	49.9 kOhms ±0.5% 0.063W, 0.1W Chip Resistor 0402 (1005 Metric) Automotive AEC-Q200 Thin Film	0402	RNCF0402DT E49K9	Stackpole Electronics		

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
R2, R5, R26, R27, R30, R31, R33, R36, R39, R40, R43, R44, R48, R49, R52, R54, R55, R58, R60, R61	20	0	RES, 0, 5%, 0.1 W, 0603	0603	RC0603JR-070RL	Yageo		
R3	1	47k	RES, 47 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040247K0JNED	Vishay-Dale		
R4	1	10.0k	RES, 10.0 k, 1%, .0625 W, 0402	0402	RT0402BRD0710KL	Yageo America		
R6	1	33.0k	RES, 33.0 k, 1%, 0.063 W, 0402	0402	RC0402FR-0733KL	Yageo America		
R7	1	115k	RES, 115 k, 1%, 0.063 W, 0402	0402	RC0402FR-07115KL	Yageo America		
R8	1	32.4k	RES, 32.4 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040232K4FKED	Vishay-Dale		
R9, R24	2	44.2k	RES, 44.2 k, 1%, 0.1 W, 0603	0603	RC0603FR-0744K2L	Yageo		
R11	1	232k	RES, 232 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402232KFKED	Vishay-Dale		
R12	1	102k	RES, 102 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402102KFKED	Vishay-Dale		
R13, R14, R15	3	1.00k	RES, 1.00 k, 1%, 0.0625 W, 0402	0402	RC0402FR-071KL	Yageo America		
R16	1	100k	RES, 100 k, 1%, 0.0625 W, 0402	0402	RC0402FR-07100KL	Yageo America		
R17	1	84.5k	RES, 84.5 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040284K5FKED	Vishay-Dale		
R25, R88	2	90.9k	RES, 90.9 k, 1%, 0.1 W, 0603	0603	RC0603FR-0790K9L	Yageo		
R34	1	232k	RES, 232 k, 0.5%, 0.1 W, 0603	0603	RT0603DRE07232KL	Yageo America		

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
R35, R84	2	105k	RES, 105 k, 1%, 0.1 W, 0603	0603	RC0603FR-07105KL	Yageo		
R37	1	115k	RES, 115 k, 0.5%, 0.1 W, 0603	0603	RT0603DRE07115KL	Yageo America		
R42, R86	2	210k	RES, 210 k, 1%, 0.1 W, 0603	0603	RC0603FR-07210KL	Yageo		
R45	1	102k	RES, 102 k, 0.1%, 0.1 W, 0603	0603	RT0603BRD07102KL	Yageo America		
R47	1	16.2k	RES, 16.2 k, 0.5%, 0.1 W, 0603	0603	RT0603DRE0716K2L	Yageo America		
R64, R65, R66, R67	4	2.2k	RES, 2.2 k, 5%, 0.1 W, 0603	0603	RC0603JR-072K2L	Yageo		
R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83	16	1.65k	RES, 1.65 k, 1%, 0.1 W, 0603	0603	RC0603FR-071K65L	Yageo		
SH-J1, SH-J18	2	J101: 1-2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J2, SH-J19	2	J101: 3-4	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J3, SH-J20	2	J101: 5-6	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J4, SH-J21	2	J101: 7-8	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J5, SH-J31	2	J101: 9-10	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J6, SH-J22	2	J101: 11-12	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J7, SH-J23	2	J101: 12-13	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J8, SH-J24	2	J101: 15-16	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J9, SH-J25	2	J101: 17-18	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J10, SH-J11, SH-J26, SH-J32	4	J14: 1-2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J12, SH-J27	2	J16: 1-2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
SH-J13, SH-J28	2	J17: 1-2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J14, SH-J29	2	J18: 1-2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J15, SH-J33	2	J5: 1-2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J16, SH-J30	2	J6: 1-2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SH-J17, SH-J34	2	J7: 1-2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
SW1	1		SWITCH TACTILE SPST-NO 0.05A 12V	SMT_SWITC H_TACT_6M M1_3MM7	PTS635SK25 SM	C&K Components		
TP1	1		Test Point, Multipurpose, Red, TH	Red Multipurpose Testpoint	5010	Keystone Electronics		
TP2	1		Test Point, Multipurpose, Black, TH	Black Multipurpose Testpoint	5011	Keystone Electronics		
TP3, TP5	2		Test Point, Compact, Red, TH	Red Compact Testpoint	5005	Keystone Electronics		
TP4, TP6	2		Test Point, Compact, Black, TH	Black Compact Testpoint	5006	Keystone Electronics		
U2	1		500mA, Adjustable, Low Quiescent Current, Low-Noise, High-PSRR, Single-Output LDO Regulator, DRB0008A (VSON-8)	DRB0008A	TPS73533DR BT	Texas Instruments		
U3, U4, U5, U6	4		Linear Voltage Regulator IC 1 Output 500mA SOT-23-5	SOT-23-5	TLV75801PD BVT	Texas Instruments		
U1	1		16-Rail PMBus™ Power Sequencer and System Manager	LQFP64	UCD91160SP M	Texas Instruments		
USB1	1		Receptacle, USB 2.0, Micro B, 5 Position, R/A, SMT	Receptacle, USB 2.0, Micro B, 5 Pos, 0.65mm Pitch, R/A, SMT	1051640001	Molex		

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
Y1	1		Crystal, 32.768 KHz, 12.5 pF, SMD	SMD, 2- Leads, Body 3.2x1.5mm	X1A00014100 14	Epson		
C24, C25, C27, C29	0	1uF	CAP, CERM, 1 uF, 10 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	0603	LMK107B710 5KAHT	Taiyo Yuden		
C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45	0	1uF	CAP, CERM, 1 uF, 10 V, +/- 10%, X7S, AEC-Q200 Grade 1, 0402	0402	GRT155C71A 105KE13D	MuRata		
H5, H6, H7, H8	0		Standoff, Hex, 0.5"L #4-40 Nylon	Standoff	1902C	Keystone		
R10, R18, R19, R20, R21, R22, R23, R28, R29, R32, R38, R41, R46, R50, R51, R53, R56, R57, R59, R62, R63, R85, R87, R89	0	0	RES, 0, 5%, 0.1 W, 0603	0603	RC0603JR-07 0RL	Yageo		

5 Additional Information

5.1 Known Hardware or Software Issues

5.2 Trademarks

All trademarks are the property of their respective owners.

5.3 Terminology

6 Related Documentation

6.1 Supplemental Content

Please see the TI Sequencer Studio GUI User's Guide for more information on using the GUI paired with this EVM.

7 References

- 1) [UCD91160 Datasheet](#)

Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

DATE	REVISION	NOTES
December 2024	*	Initial Release

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