

MAX32600MBED

ARM mbed Enabled Development Platform

General Description

The MAX32600MBED provides a convenient platform for evaluating the capabilities of the MAX32600 microcontroller. The MAX32600MBED also provides a complete, functional system ideal for developing and debugging applications.

The MAX32600MBED includes a MAX32600 Cortex[®]-M3 microcontroller, prototyping area with adjacent access to precision analog front end (AFE) connections, I/O access through Arduino[™]-compatible connectors, additional I/O access through 100mil x 100mil headers, USB interface, and other general-purpose I/O devices.

Kit Contents

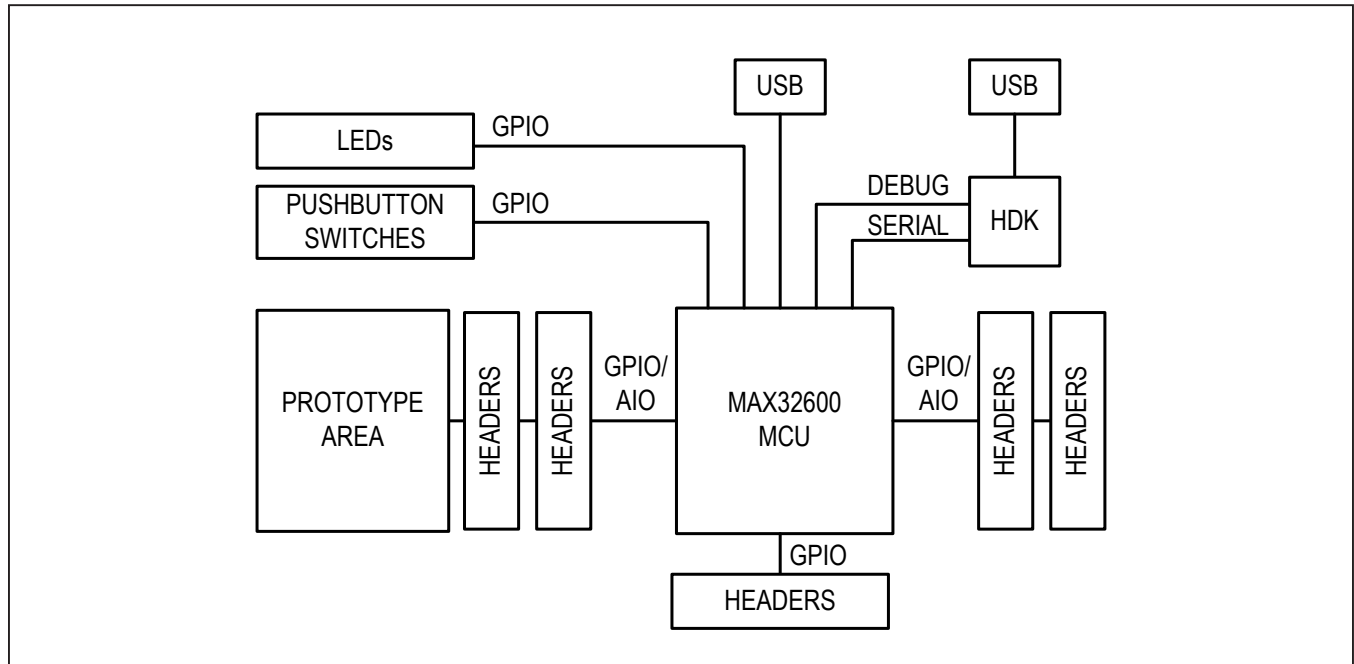
- MAX32600MBED board with MAX32600 microcontroller
- USB Standard-A to Micro-B adapter cable (for connecting on-board HDK to a PC)
- Quick Start Guide

Benefits and Features

- On-Board ARM[®] mbed[™] Hardware Development Kit (HDK) Interface Provides Quick Connection to Toolchains
- Arduino-Compatible Connectors Provide Connectivity to Existing Component Boards
- Prototyping Area Allows Construction of User Circuits in Close Proximity to Precision AFE I/O
- General-Purpose Pushbutton Switches and LEDs Allow for On-Board Tactile and Visual Interaction
- Serial Peripheral Interface (SPI) and Inter-Integrated Circuit (I²C) Connectivity on a 2 x 6 Header Provide Connectivity to Existing Evaluation Modules
- USB Micro-B Connection to MAX32600 USB Device Controller Provides 12Mbps User Data Channel

Ordering Information appears at end of data sheet.

Block Diagram



Cortex is a registered trademark of ARM Limited.

Arduino is a registered trademark of Arduino, LLC.

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mbed is a registered trademark of ARM Limited.



Detailed Description

The MAX32600MBED board is general purpose in nature. However, the ability to access the majority of I/O signals allow for easy evaluation of the MAX32600. This section describes each major function or component on the MAX32600MBED.

Board Power

The MAX32600MBED can be powered by either of the USB Micro-B connectors or an external source: VIN, V5.0, or V3.3.

HDK USB Supply

Power supplied from the HDK USB connector, CN2, shall be limited to 500mA. Only the HDK USB connector, CN2, powers the HDK circuitry. This supply is regulated to supply the HDK_V3.3 rail and is also connected to the V5.0 rail through a forward biased diode. From the V5.0 rail, it is regulated to supply V3.3.

MAX32600 USB Device Interface Supply

Power supplied from the MAX32600 USB device interface connector, CN1 is limited to 500mA. This supply is connected to the V5.0 rail through a forward biased diode. From the V5.0 rail, it is regulated to supply V3.3.

External Supply VIN

Power supplied from the VIN, J4 pin 8, is regulated to supply the V5.0 rail. The voltage input range for this input is 5V to 12V DC.

External Supplies V5.0 and V3.3

Power supplied by V5.0, J4 pin 5, is connected directly to the V5.0 rail. Likewise, power supplied by V3.3, J4 pin 4, is connected directly to the V3.3 rail.

Current Monitoring

Jumper JP4 provides a convenient current monitoring point for V3.3.

Pushbuttons

Two pushbuttons are available for application use: SW2 and SW3 are connected to port pins P6.4 and P6.5, respectively. Pushbuttons are normally open; therefore, provide a logic 0 when depressed. Firmware defines the action taken on switch closure.

Pushbutton SW4 provides a power-on reset function for the MAX32600 by asserting the RSTN input.

USB

The MAX32600 provides an integrated USB2.0 Full-speed interface (12Mbps). This interface is accessed through the USB Micro-B connector, CN1.

LEDs

Four LEDs are available for application use: D4 (yellow), D5 (red), D6 (blue) and D7 (green) are connected to MAX32620 GPIO pins P7.0, P7.1, P6.7, and P6.6, respectively. LED GPIOs should be configured as open-drain due to 3.3V LED source voltages. An LED illuminates when the appropriate GPIO pin is driven low.

Two power supply status LEDs, D9 and D10, are connected to supply rails V3.3 and V5.0, respectively.

Prototyping Area

An area for adding customer-specific circuitry is provided. This matrix is on 100mil spacing and is usable for solder or wire-wrap construction. Power and ground rails are conveniently located above and below this area.

Component List, Schematic, PCB

See the following links for component, schematic, and PCB information:

- [MAX32600MBED BOM](#)
- [MAX32600MBED Schematic](#)
- [MAX32600MBED PCB Layout](#)

Reference Material

- MAX32600 Data Sheet
- MAX32600 User Guide
- [MAX32600MBED mbed Platform Page](#)

Ordering Information

PART	TYPE
MAX32600MBED#	EV Kit

#DenotesRoHS compliant.

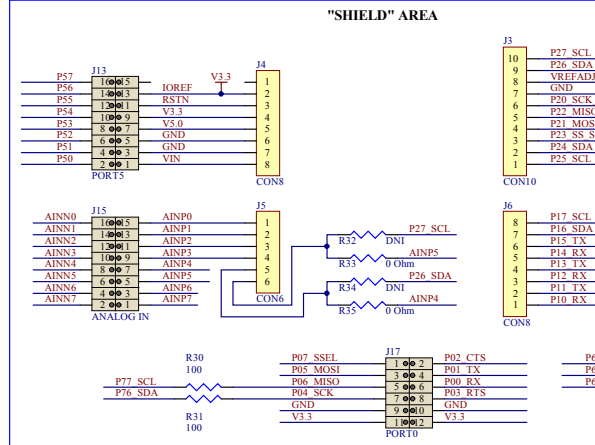
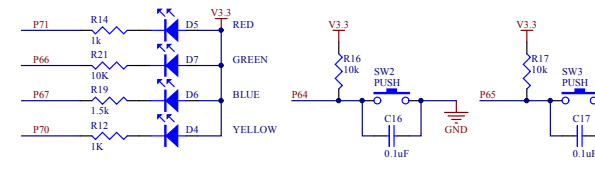
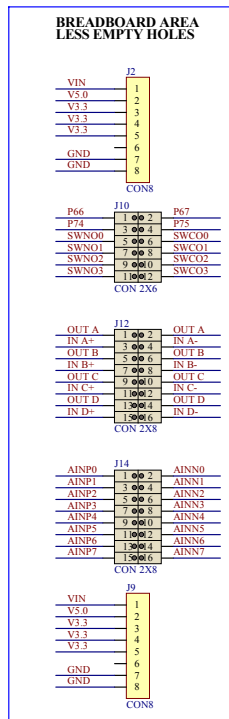
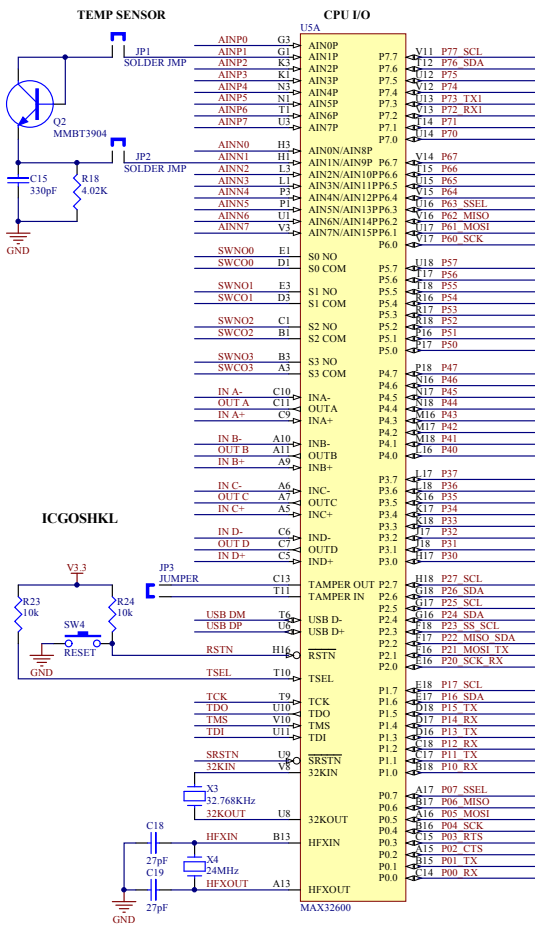
Revision History

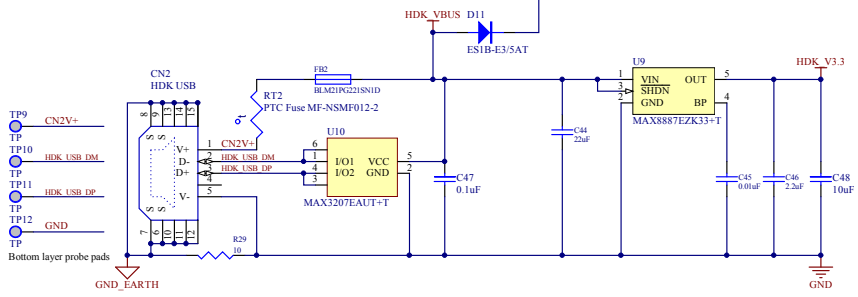
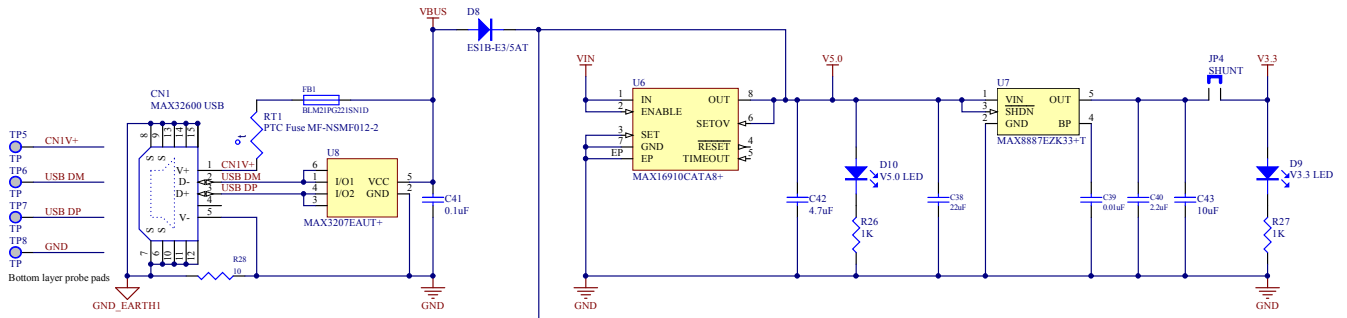
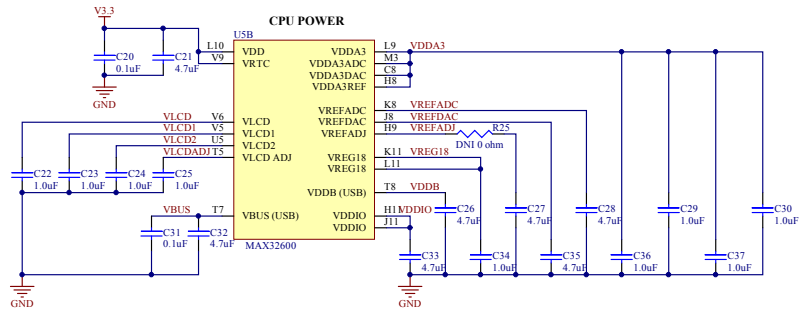
REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	10/15	Initial release	—

For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim Integrated's website at www.maximintegrated.com.

Maxim Integrated cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Maxim Integrated product. No circuit patent licenses are implied. Maxim Integrated reserves the right to change the circuitry and specifications without notice at any time. The parametric values (min and max limits) shown in the Electrical Characteristics table are guaranteed. Other parametric values quoted in this data sheet are provided for guidance.

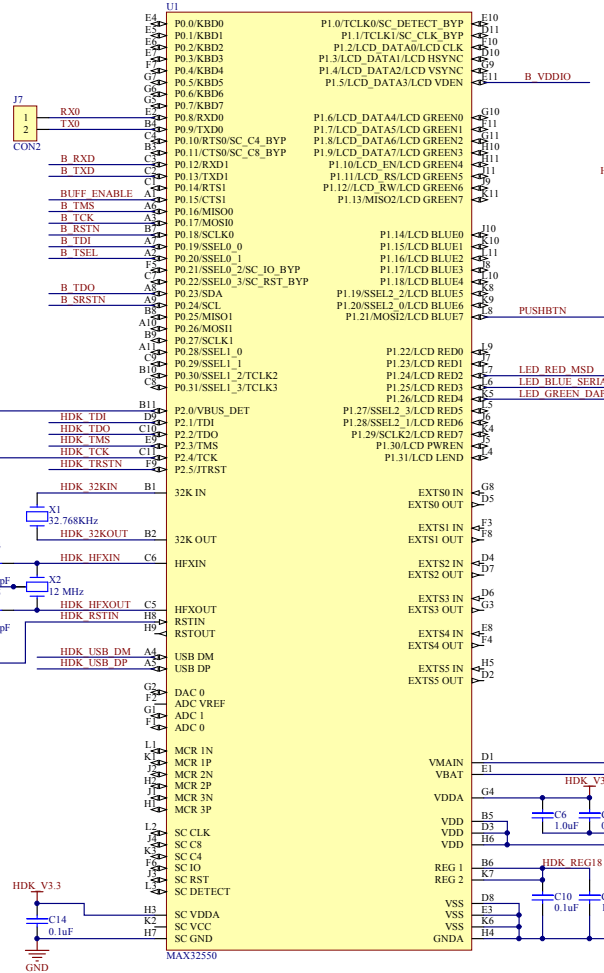
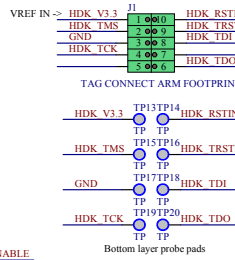
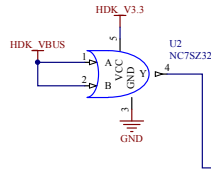
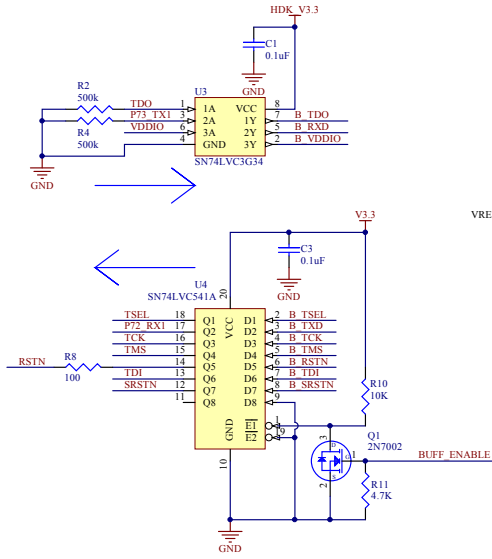
Item #	Quantity	Designator	Manufacturer	Value	Footprint	Comment	Manufacturer Name	Part Number	Description	Location	Vendor Part Number
1	6	C1, C3, C16, C17, C41, C47	Capacitors	0.1uF	CAPO603-3D		Samsung Electro-Mechanics America, Inc	CL10B104K0RNNNC	CAP CER 0.1UF 10V 10% X7R 0603	Digkey	1276-1005-2-ND
2	1	C2	Capacitors	300pF	CAPO603-3D		Samsung Electro-Mechanics America, Inc	CL10C300B0NNNC	CAP CER 300P 50V 5% NP0 0603	Digkey	1276-1021-1-ND
3	4	C4, C5, C18, C19	Capacitors	22uF	CAPO603-3D		Samsung Electro-Mechanics America, Inc	CL10C220B0NNNC	CAP CER 22UF 50V 5% NP0 0603	Digkey	1276-1086-2-ND
4	11	C6, C11, C22, C23, C24, C25, C29, C30, C34, C36, C37	Capacitors	1.0uF	CAPO602-3D		Samsung Electro-Mechanics America, Inc	CL05A105K02NNNC	CAP CER 1UF 6.3V 10% X5R 0402	Digkey	1276-1010-2-ND
5	7	C7, C9, C10, C13, C14, C20, C31	Capacitors	0.1uF	CAPO602-3D		Samsung Electro-Mechanics America, Inc	CL05A104K02NNNC	CAP CER 0.1UF 6.3V 10% X5R 0402	Digkey	1276-1442-2-ND
6	1	C8	Capacitors	0.01uF	CAPO602-3D		Samsung Electro-Mechanics America, Inc	CL10B103K0NNNC	CAP CER 10000PF 10V 10% X7R 0603	Digkey	1276-1051-2-ND
7	1	C12, C43, C48	Capacitors	10uF	CAPO605-3D		TDK Corporation	C2012K5B1A106K155AB	CAP CER 10UF 10V 10% X5R 0805	Digkey	445-7660-2-ND
8	1	C15	Capacitors	330uF	CAPO601-3D		Murata Electronics North America	GRM1885C1H331JA01D	CAP CER 330PF 50V 5% NP0 0603	Digkey	490-1439-1-ND
9	1	C26, C27, C28, C32, C33, C35	Capacitors	4.7uF	CAPO601-3D		Samsung Electro-Mechanics America, Inc	CL10M475K0BNNNC	CAP CER 4.7UF 6.3V 10% X7R 0603	Digkey	1276-2087-2-ND
10	2	C38, C44	Capacitors	22uF	CAPO605-3D		TDK Corporation	C2012K5B1C220M0R5AC	CAP CER 22UF 10V 20% X5R 0805	Digkey	445-14174-1-ND
11	2	C39, C45	Capacitors	0.01uF	CAPO601-3D		Samsung Electro-Mechanics America, Inc	CL10B103K0NNNC	CAP CER 10000PF 10V 10% X7R 0603	Digkey	1276-1921-2-ND
12	2	C40, C46	Capacitors	2.2uF	CAPO605-3D		Murata Electronics North America	GRM218F5C222SA01L	CAP CER 2.2UF 10V V50 0805	Digkey	490-1741-1-ND
13	1	C52	Capacitors	4.7uF	CAPO605-3D		Samsung Electro-Mechanics America, Inc	CL21A475K0FNNNC	CAP CER 4.7UF 10V 10% X5R 0805	Digkey	1276-2359-2-ND
14	2	CN1, CN2	USBMICROB-3D	Micro USB	USBMICROB-3D		FCI	10103594-0001LF	USB MICRO B TOP MOUNT	Digkey	609-40051-1-ND
15	4	D1, D4, D9, D10	0603LED-30RED	RED	0603LED-30RED		Lite-On Inc	LTST-C193KRKT-SA	LED RED RECT CLEAR 0603	Digkey	160-1830-1-ND
16	2	D2, D5	0603LED-30BLUE	BLUE	0603LED-30BLUE		OSRAM Opto Semiconductors Inc	18-C39G-LFN2-35-1	LED CHIPLED BLUE 470NM 0603 SMD	Digkey	475-2816-1-ND
17	2	D3, D6	0603LED-30GREEN	GREEN	0603LED-30GREEN		Dialog	PS8-8081-107F	LED INGAN GREEN CLEAR 0603 SMD	Digkey	250-2016-1-ND
18	1	D7	0603LED-30ORANGE	YELLOW	0603LED-30ORANGE		Vishay Electronics Inc	150609V575000	WL-SMCLW SMD CHIP LED WATERCLEAR 120mcd	Digkey	732-4981-1-ND
19	2	D8, D11	DIO022223-3D	ES18-E3/SAT	DIO022223-3D		Vishay Semiconductor Diodes Division	ES18-E3/SAT	DIODE UF-AST 100V 1A DO214AC	Digkey	ES18-E3/SATGCT-ND
20	2	F01, F02	0605FB-3D	RLM21PQ22150H10	0605FB-3D		Murata Electronics North America	R1621PQ22150H10	FERRITE CHIP 220 OHM 0805	Digkey	496-1054-1-ND
21	1	F3	SP10	CONN10	SP10		Sullins Connector Solutions	PPPC01LFBN-RC	CONN HEADER FEMALE 10POS, 1" GOLD	Digkey	57043-ND
22	2	J6, J6	SP18	CONN8	SP18		Sullins Connector Solutions	PPPC08LFBN-RC	CONN HEADER FEMALE 8POS, 1" GOLD	Digkey	57041-ND
23	1	J5	SP16	CONN6	SP16		Sullins Connector Solutions	PPPC06LFBN-RC	CONN HEADER FEMALE 6POS, 1" GOLD	Digkey	57039-ND
24	1	J11	DNI	PORT2	DNI		FCI	68602-208LF	CONN HEADER 20POS, 100 STR 15AUJ	Digkey	609-3375-ND
25	2	J7	DNI	PORT 2 & 3	DNI		FCI	68602-208LF	CONN HEADER 20POS, 100 STR 15AUJ	Digkey	609-3375-ND
26	3	J13, J15, J16	DNI	PORTS, PORT 1 & 4	DNI		FCI	68602-216HLF	CONN HEADER 16POS, 100 STR 15AUJ	Mouser	"609-3374-ND" "649-68602-216HLF"
27	1	J17	DNI	PORT0	DNI		Sullins Connector Solutions	PPPC06LFBN-RC	CONN FEMALE 12POS, 1" 8/A GOLD	Digkey	55539-ND
28	1	J18	DNI	PORT1	DNI		FCI	68602-208HLF	CONN HEADER 6POS, 100 STR 15AUJ	Digkey	609-3370-ND
29	2	J19, J4	SP2	JUMPER	SP2	Cut to 2-pin lengths	Sullins Connector Solutions	PEC36GAAW	CONN HEADER, 100 SINGL STR 36POS	Digkey	53011E-36-ND
30	1	J21	16001-3D	2N7002	16001-3D		NXP Semiconductors	2N7002BK-215	MOSFET N-CH 60V 350MA SOT23	Digkey	566-9981-1-ND
31	1	J22	SP123-3D	MMBT3904	SP123-3D		Diodes Incorporated	MMBT3904T-7-F	TRANS NPN NPN Q.2K SOT23	Digkey	MMBT3904T-FDICT-ND
32	1	R1	0603-3D	20k	0603-3D		Robins Semiconductor	MCR03ERT200A	RES SMD 20K OHM 1% 1/10W 0603	Digkey	RHM20.0KCFTR-ND
33	2	R2, R4	0603-3D	500k	0603-3D		Vishay Dale	CRCW0603499KFEA	RES SMD 499K OHM 1% 1/10W 0603	Digkey	541-490KHTR-ND
34	5	R3, R12, R21, R26, R27	0603-3D	1k	0603-3D		Yageo	RC0603R-071KL	RES SMD 1K OHM 1% 1/10W 0603	Digkey	311-1.00KHTR-ND
35	2	R5, R24	0603-3D	1.5k	0603-3D		Panasonic Electronic Components	ERJ-3EK1F00V	RES SMD 1.5K OHM 1% 1/10W 0603	Digkey	91-500KTR-ND
36	8	R6, R9, R10, R16, R17, R19, R23, R24	0603-3D	10k	0603-3D		Panasonic Electronic Components	ERJ-3EK1F00V	RES SMD 10K OHM 1% 1/10W 0603	Digkey	P10.00KTR-ND
37	1	R7	0603-3D	68 ohm	0603-3D		Samsung Electro-Mechanics America, Inc	RC1608F880C3	RES SMD 68 OHM 1% 1/10W 0603	Digkey	1276-4550-1-ND
38	3	R8, R30, R31	0603-3D	100 ohm	0603-3D		Samsung Electro-Mechanics America, Inc	RC1608F100C3	RES SMD 100 OHM 1% 1/10W 0603	Digkey	1276-3482-2-ND
39	1	R11	0603-3D	4.7k	0603-3D		Robins Semiconductor	MCR03ERT4701	RES SMD 4.7K OHM 1% 1/10W 0603	Digkey	RHM4.70KCFTR-ND
40	1	R18	0603-3D	4.02k	0603-3D		Yageo	RT0603RD074K02L	RES SMD 4.02K OHM 0.5% 1/10W	Digkey	311-4.02KQCT-ND
41	1	R25	DNI	N/A	0603-3D		DNI	N/A	N/A	Digkey	N/A
42	1	R13, R15, R20, R22, R25	DNI	N/A	0603-3D		DNI	N/A	N/A	Digkey	N/A
43	2	R28, R29	0603-3D	10 ohm	0603-3D		Panasonic Electronic Components	ERJ-3EK1F00V	RES SMD 10 OHM 1% 1/10W 0603	Digkey	P10.00TR-ND
44	2	R33, R35	0603-3D	0 Ohm	0603-3D		Panasonic Electronic Components	ERJ-3GEY0R00V	RES SMD 0.0 OHM JUMPER 1/10W	Digkey	P0.0GTR-ND
45	2	R71, R72	L3909LVPULSE-3D	PTC Fuse	L3909LVPULSE-3D		Aluminum Inc.	MF-NSM012-2	PTC RESETTABLE 12A 30V 1206	Digkey	MF-NSM012-2CT-ND
46	1	SW1	SP2	N/A	SP2		N/A	N/A	N/A	Digkey	N/A
47	3	SW2, SW3, SW4	RESE11-3D	PU5H	RESE11-3D		CK&K Components	KSR224GFS	SWITCH TACTILE SPST-NO 0.05A 32V	Digkey	401-1203-1-ND
48	1	U1	8G4121 8u8mm 0.65p	MAX32550	U1		Maxim Integrated	MAX32550	Secure Cortex-M3 Flash Microcontroller	N/A	N/A
49	1	U2	SOT23-5-SD	NC7SZ32	U2		Fairchild Semiconductor	NC7SZ32MSX	IC GATE OR 8V 2.2K SOT-23-5	Digkey	NC7SZ32MSXCT-ND
50	1	U3	VF509F	SN74LVC3G34	U3		Texas Instruments	SN74LVC3G34DCUR	IC BUFFER TRPL NON-INV USB	Digkey	296-1286-1-ND
51	1	U4	TSSOP20	SN74LVC541A	U4		Texas Instruments	SN74LVC541ADBRR	IC BUFLV/DVTR TR-ST 8BIT 20SSOP	Digkey	296-8518-1-ND
52	1	U5	WASPMGA192	MAX32600	U5		Maxim Integrated	MAX32600	Secure Sensor Measurement Microcontroller	N/A	N/A
53	1	U6	TQFN8 3MM 6ST	MAX1691UCAT8B	U6		Maxim Integrated	MAX1691UCAT8B+	Linear Regulator 3V/DV/Adj 200mA	N/A	N/A
54	2	U7, U9	SOT23-5-SD	MAX8887ZK33+	U7, U9		Maxim Integrated	MAX8887ZK33+	LDO 300mA Linear Regulator 3.3v version	N/A	N/A
55	2	U8, U10	tot23-6-SD	MAX3207E-AUT+	U8, U10		Maxim Integrated	MAX3207E-AUT+	Dual High-Speed Differential ESD-Protection IC	N/A	N/A
56	2	K1, K3	CRYSTAL-48M07	32.7680KHz	CRYSTAL-48M07		Abracoan LLC	AB07-32.7680KHz-6-T	CRYSTAL 32.7680KHz 6-PIN SMD	Digkey	535-11808-1-ND
57	1	K2	CRYSTAL-48M3X	12 MHz	CRYSTAL-48M3X		Abracoan LLC	ABM38-12.000MHz-82-T	CRYSTAL 12MHz 1.8PF SMD	Digkey	535-9116-1-ND
58	1	K4	CRYSTAL-48M3X	24MHz	CRYSTAL-48M3X		Abracoan LLC	ABM7-24.000MHz-02V-T	CRYSTAL 24MHz 1.8PF SMD	Digkey	535-9845-1-ND



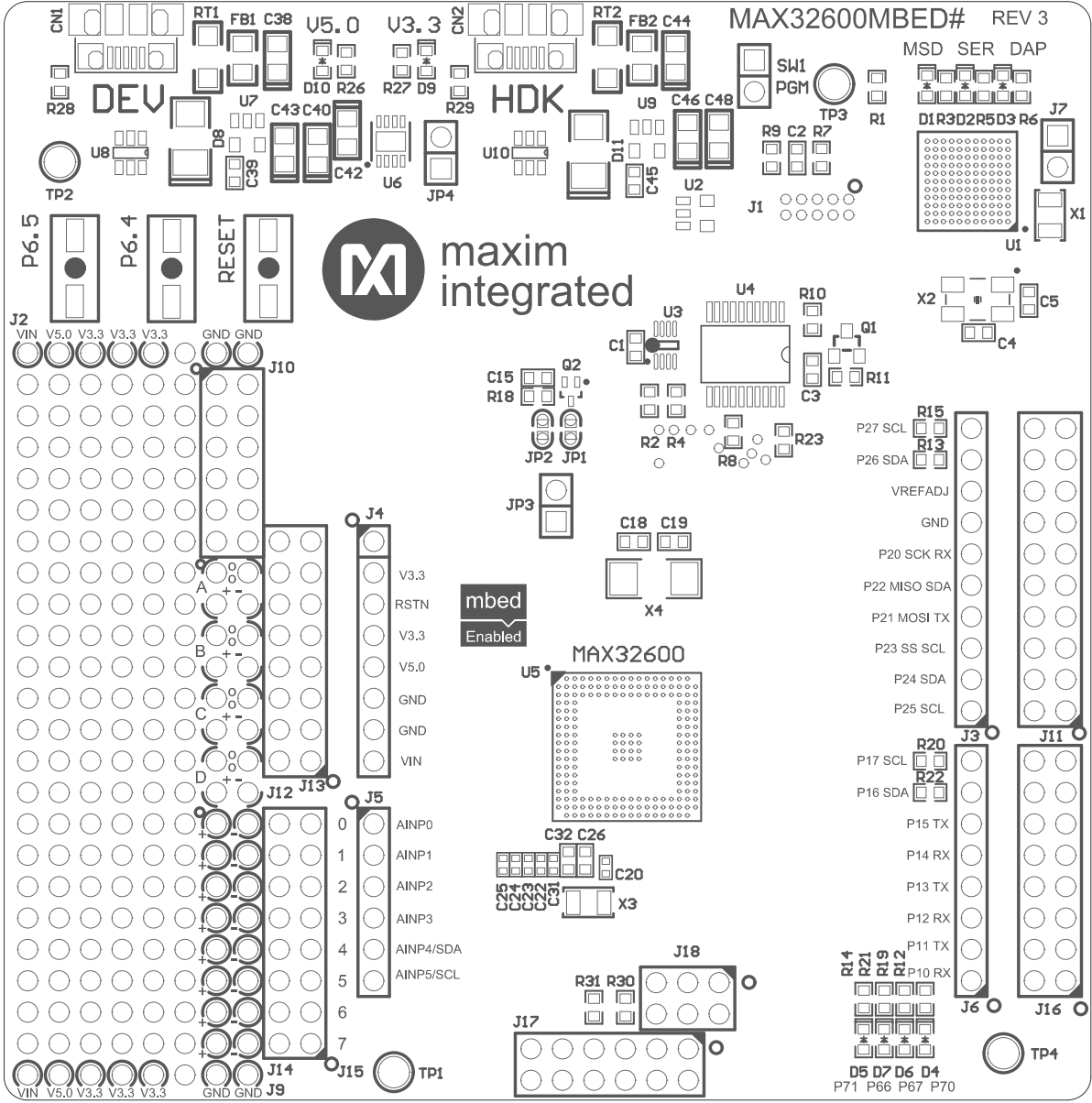


HDK IO SECTION

BUFFERS

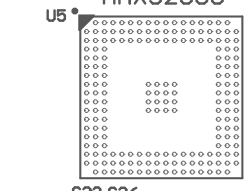
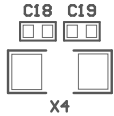
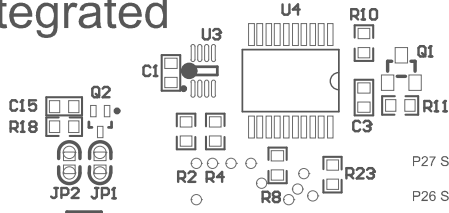
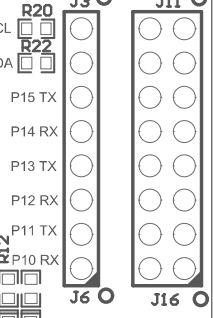
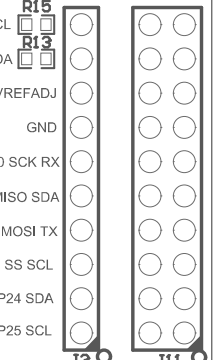
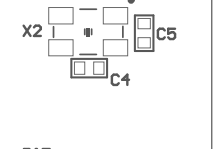
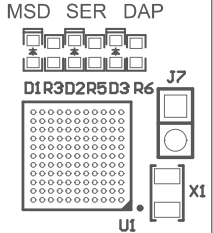
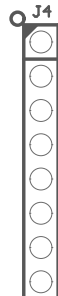
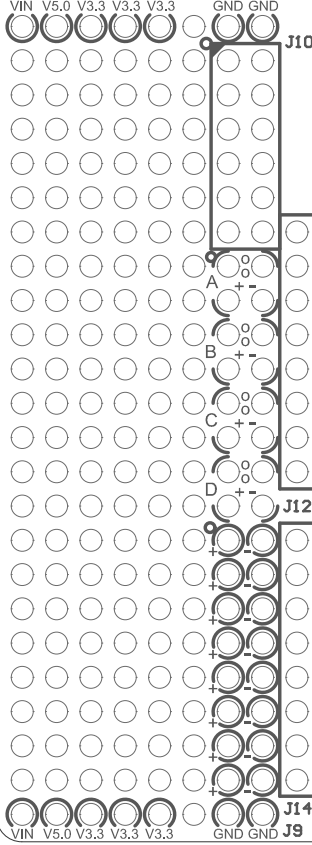
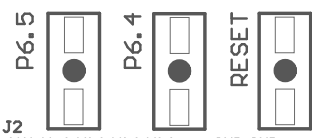


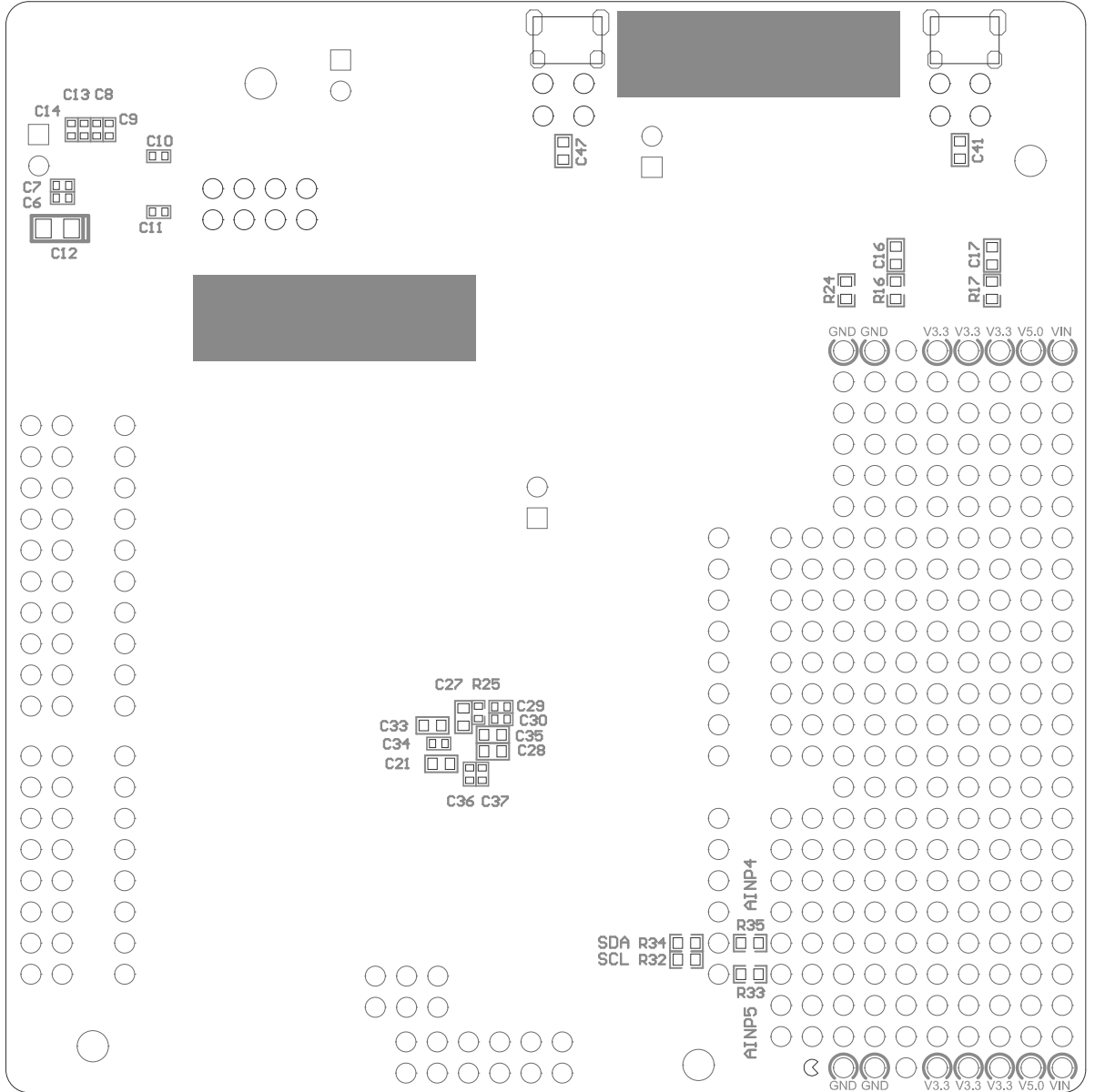
MAX32600MBED# REV 3



mbed Enabled

MAX32600





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