

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

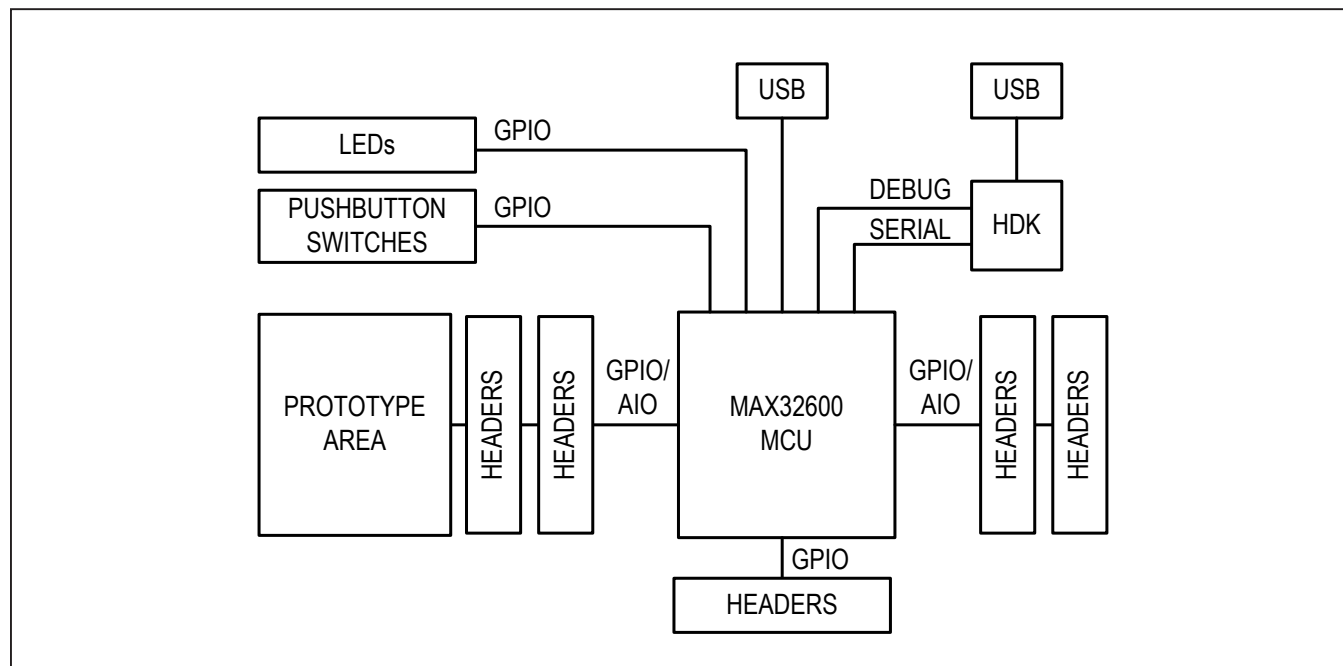
- MAX32600MBED board with MAX32600 microcontroller
- USB Standard-A to Micro-B adapter cable (for connecting on-board HDK to a PC)
- Quick Start Guide

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.

ARM is a registered trademark and registered service mark of ARM Limited.

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

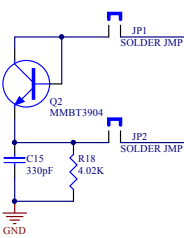
REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	10/15	Initial release	—

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	Notes	Footprint	Comment	Manufacturer Name	Part Number	Description	Vendor	Vendor Part Number
1	6	C1, C3, C16, C17, C41, C47		CAP0603-3D	0.1uF	Samsung Electro-Mechanics America, Inc	CL10B104K08NNNC	CAP CER 0.1UF 16V 10% X7R 0603	Digikey	1276-1005-2-ND
2	1	C2		CAP0603-3D	30pF	Samsung Electro-Mechanics America, Inc	CL10C300J8BNNNC	CAP CER 30PF 50V 5% NPO 0603	Digikey	1276-1021-1-ND
3	4	C4, C5, C18, C19		CAP0603-3D	270pF	Samsung Electro-Mechanics America, Inc	CL10C270J8BNNNC	CAP CER 27PF 50V 5% NPO 0603	Digikey	1276-1086-2-ND
4	11	C6, C11, C22, C23, C24, C25, C29, C30, C34, C36, C37		CAP0402-3D	1.0uF	Samsung Electro-Mechanics America, Inc	CL05A105K05NNNC	CAP CER 1UF 6.3V 10% X5R 0402	Digikey	1276-1010-2-ND
5	7	C7, C9, C10, C13, C14, C20, C31		CAP0402-3D	0.1uF	Samsung Electro-Mechanics America, Inc	CL05A104K05NNNC	CAP CER 0.1UF 6.3V 10% X5R 0402	Digikey	1276-1442-2-ND
6	1	C8		CAP0402-3D	0.01uF	Samsung Electro-Mechanics America, Inc	CL10B103K8BNCNC	CAP CER 10000PF 16V 10% X7R 0402	Digikey	1276-1051-2-ND
7	3	C12, C43, C48		CAP0805-3D	10uF	TDK Corporation	C2012X5R1A106K125AB	CAP CER 10UF 10V 10% X5R 0805	Digikey	445-7660-2-ND
8	1	C15		CAP0603-3D	330pF	Murata Electronics North America	GRM1885C1H31JA01D	CAP CER 330PF 50V 5% NPO 0603	Digikey	490-1439-1-ND
9	7	C21, C26, C27, C28, C32, C33, C35		CAP0603-3D	4.7uF	Samsung Electro-Mechanics America, Inc	CL10B475K08NQNC	CAP CER 4.7UF 6.3V 10% X7R 0603	Digikey	1276-2087-2-ND
10	2	C38, C44		CAP0805-3D	22uF	TDK Corporation	C2012X5R1C226M08SAC	CAP CER 22UF 16V 20% X5R 0805	Digikey	445-14374-1-ND
11	2	C39, C45		CAP0603-3D	0.01uF	Samsung Electro-Mechanics America, Inc	CL10B103K8BNCNC	CAP CER 10000PF 50V 10% X7R 0603	Digikey	1276-1921-2-ND
12	2	C40, C46		CAP0805-3D	2.2uF	Murata Electronics North America	GRM218F51C2252A01L	CAP CER 2.2UF 16V Y5V 0805	Digikey	490-1741-1-ND
13	1	C42		CAP0805-3D	4.7uF	Samsung Electro-Mechanics America, Inc	CL21A475KFPNNNE	CAP CER 4.7UF 10V 10% X5R 0805	Digikey	1276-1259-2-ND
14	2	CN1, CN2		USBMICROB-3D	Micro USB	FCI	10103594-0001LF	USB MICRO B TOP MOUNT	Digikey	609-4050-1-ND
15	4	D1, D4, D9, D10		06031LED-3DRED	RED	Lite-On Inc	LTST-C193KRKT-5A	LED RED RECT CLEAR 0603	Digikey	160-1830-1-ND
16	2	D2, D5		06031LED-3DBLUE	BLUE	OSRAM Opto Semiconductors Inc	LB Q39G-L2N2-35-1	LED CHIPLED BLUE 470NM 0603 SMD	Digikey	475-2816-1-ND
17	2	D3, D6		06031LED-3DGREEN	GREEN	Dialight	598-8081-107F	LED INGAN GREEN CLEAR 0603 SMD	Digikey	350-2036-1-ND
18	1	D7		06031LED-3DORANGE	YELLOW	Vishay Electronics Inc	15060Y0575000	WL-SMCW 5SD CHIP LED WATERCLEAR 120mcd	Digikey	732-4981-1-ND
19	2	D8, D11		DIODE2223-3D	ES1B-E3/SAT	Wurth Semiconductor Diodes Division	ES1B-E3/SAT	DIODE UFAST 100V 1A DO214AC	Digikey	ES1B-E3/SATGIC-ND
20	2	F81, F82		BLM21PG2215N1D		Murata Electronics North America	BLM21PG2215N1D	FERRITE CHIP 220 OHM 0805	Digikey	490-1054-1-ND
21	1	J3		SIP10	CNN10	Sullins Connector Solutions	PPPC1011FBN-RC	CONN HEADER FEMALE 10POS. 1" GOLD	Digikey	57043-ND
22	2	J4, J6		SIP8	CNN8	Sullins Connector Solutions	PPPC0811FBN-RC	CONN HEADER FEMALE 8POS. 1" GOLD	Digikey	57041-ND
23	1	J5		SIP6	CNN6	Sullins Connector Solutions	PPPC0611FBN-RC	CONN HEADER FEMALE 6POS. 1" GOLD	Digikey	57039-ND
24	1	J11		DIH10X2	PORT 2 & 3	FCI	68602-220HLF	CONN HEADER 20POS. 100 STR 15AU	Digikey	609-3375-ND
25	2	J7	DNI	SIP2						
26	3	J13, J15, J16		DIH8X2	PORTS, PORT 1 & 4	FCI	68602-216HLF	CONN HEADER 16POS. 100 STR 15AU	Mouser	"609-3374-ND" "649-68602-216HLF"
27	1	J17	DNI	DIH6X2	PORT0	Sullins Connector Solutions	PPPC0621UBN-RC	CONN FEMALE 12POS. 1" R/A GOLD	Digikey	55559-ND
28	1	J18		DIH3x2	PORT6	FCI	68602-206HLF	CONN HEADER 6POS. 100 STR 15AU	Digikey	609-3370-ND
29	2	JP3, JP4	Cut to 2 pin lengths	SIP2	JUMPER	Sullins Connector Solutions	PBC365AAN	CONN HEADER 100 SINGL STR 36POS	Digikey	51011E-36-ND
30	1	Q1		16001-3D	2N7002	NXP Semiconductors	2N7002BKT, 215	MOSFET N-CH 60V 350MA SOT23	Digikey	568-5981-1-ND
31	1	Q2		SOT523-3D	MMBT3904	Diodes Incorporated	MMBT3904T-7-F	TRANS NPN 40V 0.2A SOT523	Digikey	MMBT3904T-FOICT-ND
32	1	R1		0603-3D	20k	Rohm Semiconductor	MCR03ERTF2002	RES SMD 20K OHM 1% 1/10W 0603	Digikey	RHM20.0KCFTR-ND
33	2	R2, R4		0603-3D	500k	Yageo	CRCW0603499KFKEA	RES SMD 499K OHM 1% 1/10W 0603	Digikey	541-499KHTR-ND
34	5	R3, R12, R21, R26, R27		0603-3D	1K	Yageo	RC0603FR-071KL	RES SMD 1K OHM 1% 1/10W 0603	Digikey	311-1.00KHTR-ND
35	2	R5, R14		0603-3D	1.5K	Panasonic Electronic Components	ERJ-3EKF1501V	RES SMD 1.5K OHM 1% 1/10W 0603	Digikey	P1.50KHTR-ND
36	8	R6, R9, R10, R16, R17, R19, R23, R24		0603-3D	10K	Panasonic Electronic Components	ERJ-3EKF1002V	RES SMD 10K OHM 1% 1/10W 0603	Digikey	P10.0KHTR-ND
37	1	R7		0603-3D	68 ohm	Samsung Electro-Mechanics America, Inc	RC1608F680CS	RES SMD 68 OHM 1% 1/10W 0603	Digikey	1276-4550-1-ND
38	3	R8, R30, R31		0603-3D	100 ohm	Samsung Electro-Mechanics America, Inc	RC1608F101CS	RES SMD 100 OHM 1% 1/10W 0603	Digikey	1276-3482-2-ND
39	1	R11		0603-3D	4.7K	Rohm Semiconductor	MCR03ERTF4701	RES SMD 4.7K OHM 1% 1/10W 0603	Digikey	RHM4.7KCFTR-ND
40	1	R18		0603-3D	4.02K	Yageo	RT06033DRD074K02L	RES SMD 4.02K OHM 0.5% 1/10W	Digikey	311-4.02KCT-ND
41	1	R25	DNI	0402-3D	DNI	N/A	N/A	N/A	N/A	N/A
42	1	R13, R15, R20, R22, R25	DNI	0603-3D	DNI	N/A	N/A	N/A	N/A	N/A
43	2	R28, R29		0603-3D	10 ohm	Panasonic Electronic Components	ERJ-3EKF10R0V	RES SMD 10 OHM 1% 1/10W 0603	Digikey	P10.0HTR-ND
44	2	R33, R35		0603-3D	0 Ohm	Panasonic Electronic Components	ERJ-3GEY0R00V	RES SMD 0.0 OHM JUMPER 1/10W	Digikey	P0.0GTR-ND
45	2	RT1, RT2		1206POLYFUSE-3D	PTC Fuse	Bourns Inc.	MF-NSMF012-2	PTC RESETTABLE 12A 30V 1206	Digikey	MF-NSMF012-2CT-ND
46	1	SW1	DNI	SIP2	DNI	N/A	N/A	N/A	N/A	N/A
47	3	SW2, SW3, SW4		RESET11-3D	PUSH	C&K Components	KSR221GLFS	SWITCH TACTILE SPST-NO 0.05A 32V	Digikey	401-1703-1-ND
48	1	U1		BGA121 8x8mm 0.65p	MAX32550	Maxim Integrated	MAX32550	Secure Cortex-M3 Flash Microcontroller	N/A	N/A
49	1	U2		SOT23-5-3D	NC7S232	Fairchild Semiconductor	NC7S232M5X	IC GATE OR 1CH 2-IMP SOT-23-5	Digikey	NC7S232M5XCT-ND
50	1	U3		VFSOP8	SN74LVC3G34	Texas Instruments	SN74LVC3G34DCUR	IC BUFFER TRPL NON-INV US8	Digikey	296-13286-1-ND
51	1	U4		TSSOP20	SN74LVC541A	Texas Instruments	SN74LVC541ADBRR	IC BUFF/DVR TRI-STR 8BIT 20SSOP	Digikey	296-8518-1-ND
52	1	U5		WASBPGA192	MAX32600	Maxim Integrated	MAX32600	Secure Sensor Measurement Microcontroller	N/A	N/A
53	1	U6		TDFN8 3MM .65T	MAX16910CATAB+	Maxim Integrated	MAX16910CATAB+/V+	Linear Regulator 3V/5V/ADJ 200mA	N/A	N/A
54	2	U7, U9		SOT23-5-3D	MAX8887EZK33+T	Maxim Integrated	MAX8887EZK33+	LDO 300mA Linear Regulator 3.3v version	N/A	N/A
55	2	U8, U10		sot23-6-3D	MAX3207EAUT+	Maxim Integrated	MAX3207EAUT+	Dual High-Speed Differential ESD-Protection IC	N/A	N/A
56	2	X1, X3		CRYSTAL-ABS07	32.768KHz	Abracon LLC	AB507-32.768KHZ-6-T	CRYSTAL 32.768KHZ 6.0PF SMD	Digikey	535-11898-1-ND
57	1	X2		CRYSTAL-ABM3X	12 MHz	Abracon LLC	ABM3B-12.000MHZ-82-T	CRYSTAL 12MHZ 18PF SMD	Digikey	535-9116-1-ND
58	1	X4			24MHz	Abracon LLC	ABM7-24.000MHZ-D2Y-T	CRYSTAL 24MHZ 18PF SMD	Digikey	535-9845-1-ND

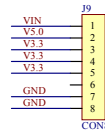
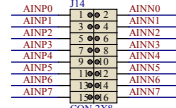
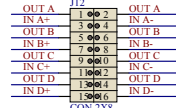
TEMP SENSOR



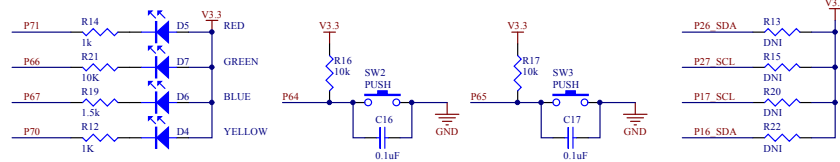
USA

AINP0	G3	AIN0P	P7.7	V11	P77 SCL
AINP1	G1	AIN1P	P7.6	V12	P76 SDA
AINP2	K3	AIN2P	P7.5	V12	P75
AINP3	K1	AIN3P	P7.4	V12	P74
AINP4	N3	AIN4P	P7.3	V13	P73 TX1
AINP5	N1	AIN5P	P7.2	V13	P73 RX1
AINP6	U3	AIN6P	P7.1	V14	P71
AINP7	U5	AIN7P	P7.0	V14	P70
AINN0	H3	AIN0N/AIN8P		V14	P67
AINN1	H1	AIN1N/AIN9P	P6.7	V15	P66
AINN2	L3	AIN2N/AIN10P	P6.6	V15	P65
AINN3	L1	AIN3N/AIN11P	P6.5	V15	P64
AINN4	P3	AIN4N/AIN12P	P6.4	V16	P64 SSEL
AINN5	P1	AIN5N/AIN13P	P6.3	V16	P63 MISO
AINN6	U1	AIN6N/AIN14P	P6.2	V17	P61 MOSI
AINN7	V3	AIN7N/AIN15P	P6.1	V17	P60 SCK
SWN00	E1	S0 NO	P5.7	V18	P57
SWC00	D1	S0 COM	P5.6	V17	P56
SWN01	E3	S1 NO	P5.5	V18	P55
SWC01	D3	S1 COM	P5.4	V16	P54
SWN02	C1	S2 NO	P5.3	V17	P53
SWC02	B1	S2 COM	P5.2	V18	P52
SWN03	B3	S3 NO	P5.1	V16	P51
SWC03	A3	S3 COM	P5.0	V17	P50
IN A-	C10	INA-	P4.6	V18	P47
OUT A-	C11	OUTA-	P4.5	V17	P45
IN A+	C9	INA+	P4.4	V18	P44
OUT A+	C8	OUTA+	P4.3	V17	P42
IN B-	A10	INB-	P4.2	V18	P41
OUT B-	A11	OUTB-	P4.1	V17	P40
IN B+	A9	INB+	P4.0	V18	P37
OUT B+	A8	OUTB+	P3.7	V17	P36
IN C-	A6	INC-	P3.6	V18	P35
OUT C-	A7	OUTC-	P3.5	V17	P34
IN C+	A5	INC+	P3.4	V18	P33
OUT C+	A4	OUTC+	P3.3	V17	P32
IN D-	C6	IND-	P3.2	V18	P31
OUT D-	C7	OUTD-	P3.1	V17	P30
IN D+	C5	IND+	P3.0	V18	P27 SCL
OUT D+	C4	OUTD+	P2.7	V18	P26 SDA
TAMPER OUT	T11	TAMPER IN	P2.6	V17	P25 SCL
USB DM	T6	USB DP	P2.5	V18	P24
USB D+	H16	RSTN	P2.3	V17	P23 SS SCL
RSTN	H16	TSEL	P2.2	V18	P22 MISO SDA
TSEL	T10	TSEL	P2.1	V17	P21 MOSI TX
TCK	T9	TCK	P2.0	V18	P20 SCK RX
TDO	U10	TDO	P1.7	V18	P17 SCL
TMS	V10	TMS	P1.6	V17	P16 SDA
TDI	U11	TDI	P1.5	V18	P15 TX
SRSTN	U9	SRSTN	P1.4	V17	P14 RX
SRSTN	V8	SRSTN	P1.3	V18	P13 TX
SRSTN	V8	SRSTN	P1.2	V17	P12 RX
SRSTN	V8	SRSTN	P1.1	V18	P11 TX
SRSTN	V8	SRSTN	P1.0	V17	P10 RX
V3	V3	V3	P0.7	V18	P07 SSEL
V3	V3	V3	P0.6	V17	P06 MISO
V3	V3	V3	P0.5	V18	P05 MOSI
V3	V3	V3	P0.4	V17	P04 SCK
V3	V3	V3	P0.3	V18	P03 RTS
V3	V3	V3	P0.2	V17	P02 CTS
V3	V3	V3	P0.1	V18	P01 TX
V3	V3	V3	P0.0	V17	P00 RX

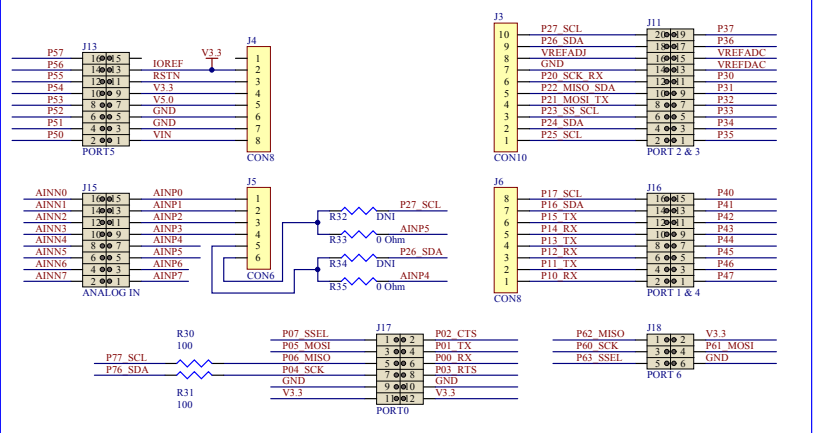
MAX32600

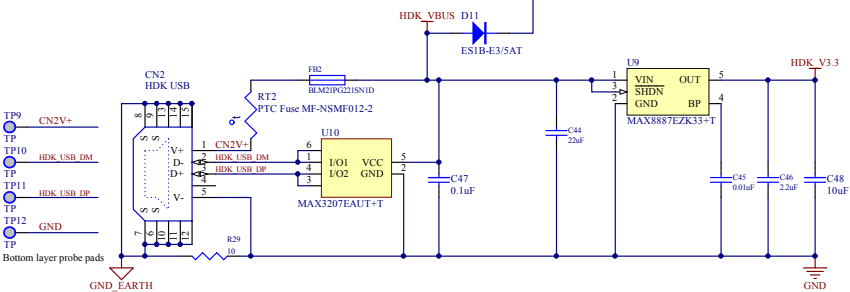
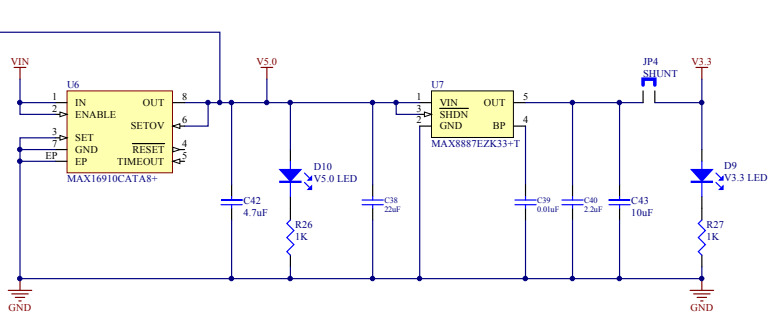
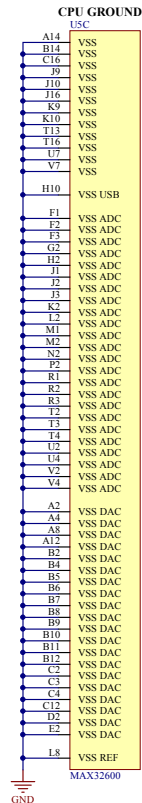
BREADBOARD AREA
LESS EMPTY HOLES

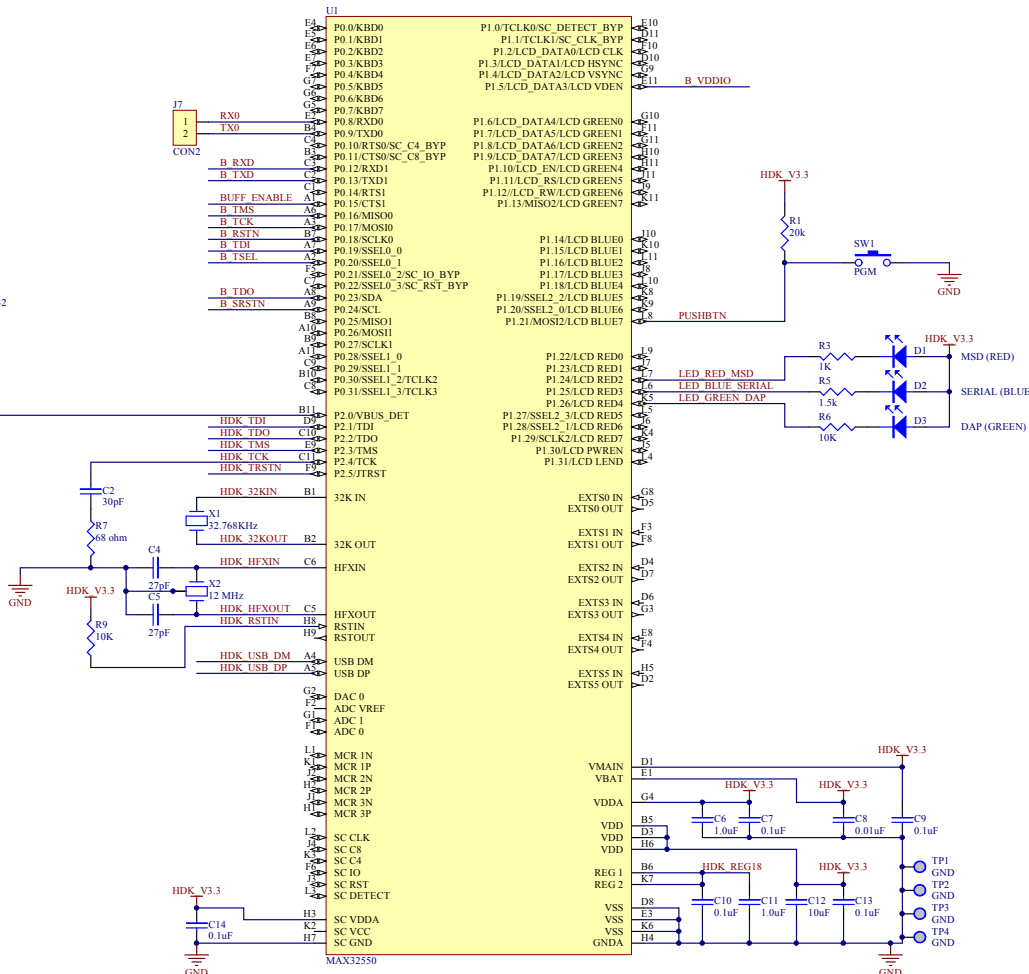
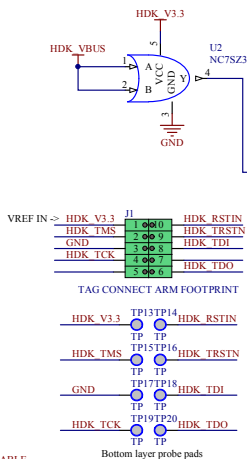
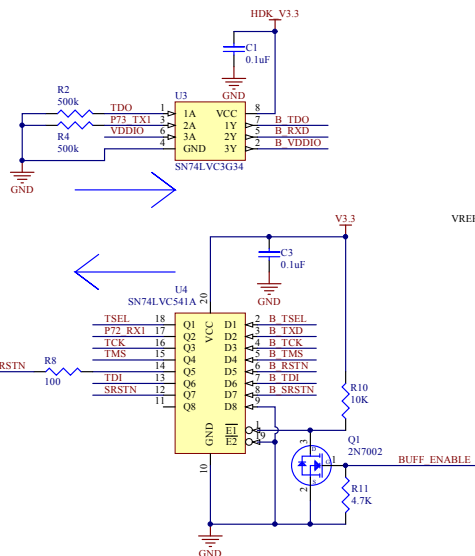
I2C PULLUP

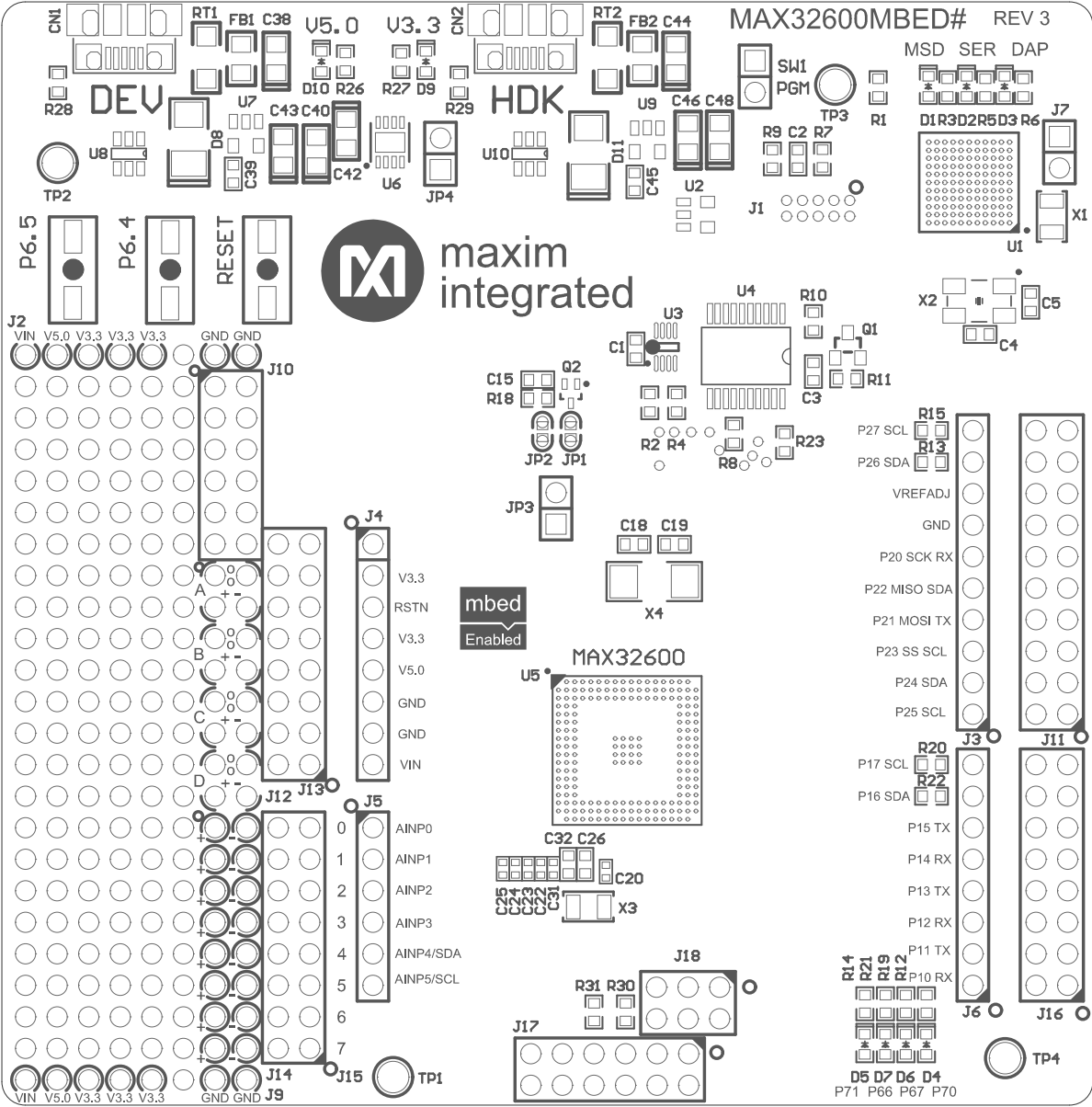


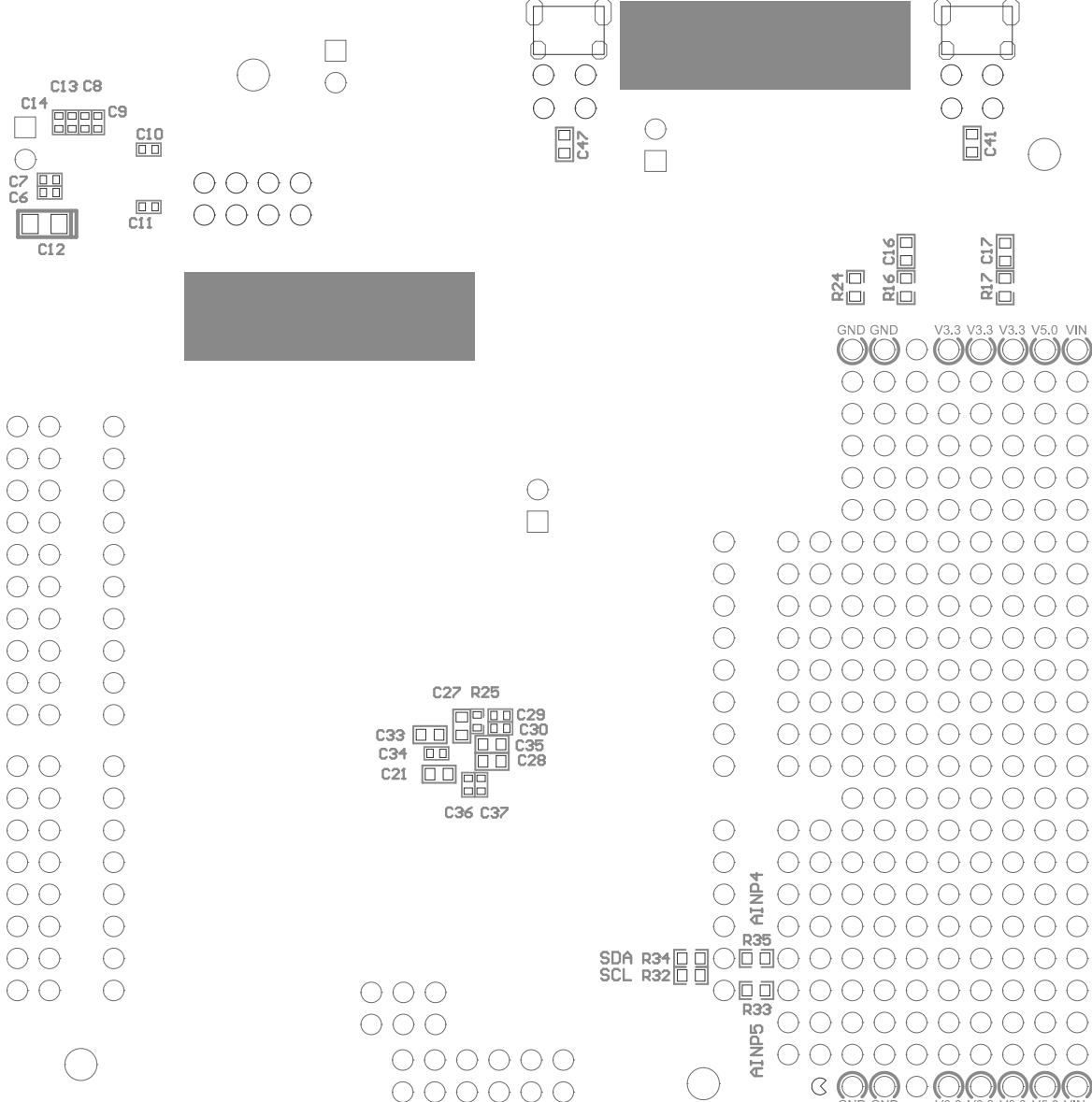
"SHIELD" AREA











Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Maxim Integrated:](#)

[MAX32600MBED#](#)