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General Description

The MAX32660 evaluation kit provides a compact development platform that provides access to all the features of the MAX32660 in a tiny, easy to use board. The form factor is a small 0.6in by 0.9in dual-row header footprint that is compatible with breadboards. The board includes a 10-pin Arm® Cortex® debug connector so that it can be used with a DAPLink adapter. Additionally, a red LED indicator and a pushbutton are on board. This board provides a powerful processing subsystem in a very small space that can be easily integrated into a variety of applications.

Kit Contents

- MAX32660 EV kit board
- MAX32625PICO programming/debug adapter
- SWD ribbon cable
- USB A to Micro B cable
- Pinout card

Features

- MAX32660 Microcontroller
  - Arm Cortex-M4F, 96MHz
  - 256KB Flash Memory
  - 96KB SRAM
  - 16KB Instruction Cache
  - Two SPIs
  - Two I^{2}Cs
  - Two UARTs
  - 14 GPIOs
- DIP Breakout Board
  - 100mil Pitch Dual Inline Pin Headers
  - Breadboard Compatible
- DAPLink Header
  - 10-Pin Arm Cortex Debug Pinout
  - Console UART Connection
- Integrated Peripherals
  - Red Indicator LED
  - User Pushbutton
- MAX32625PICO Debug Adapter
  - CMSIS-DAP SWD Debugger
  - Virtual UART Console

MAX32660 EV Kit Photo

Ordering Information **appears at end of data sheet.**
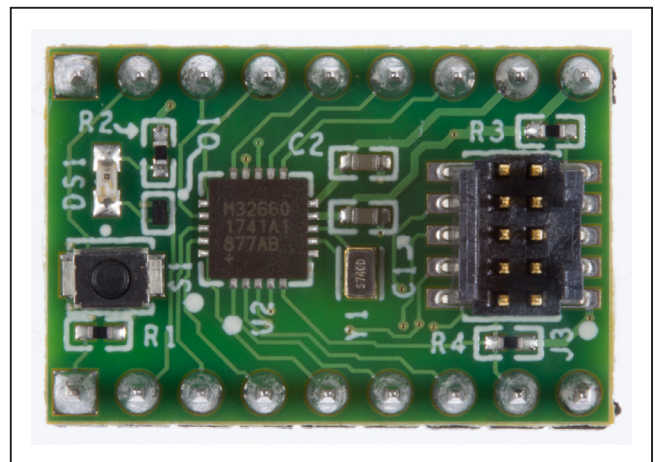
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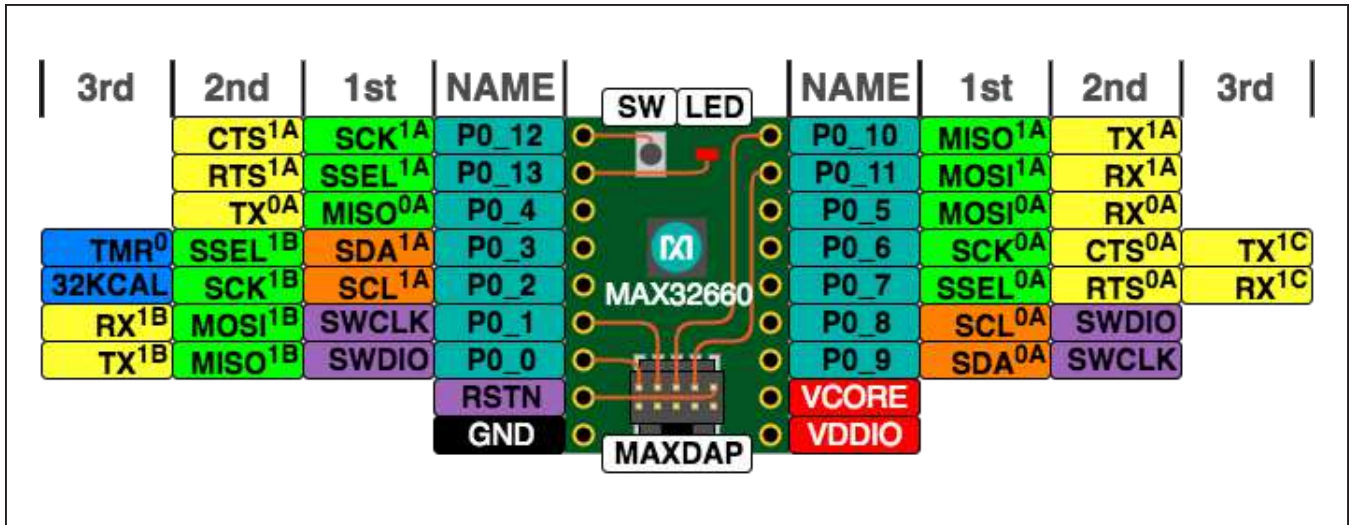
Figure 1. Pinout Diagram

Quick Start

To begin using the MAX32660 EV kit, follow these steps:

1) Connect the MAX32660 breakout board DAPLink connector (J3) to the MAX32625PICO board MAXDAP connector using the included fine pitch ribbon cable.
2) Connect VDDIO on the MAX32660 breakout board (J2 pin 9) to either 1.8V or 3.3V from the MAX32625PICO board.
3) Connect the MAX32625PICO board to the computer using the included micro USB cable.
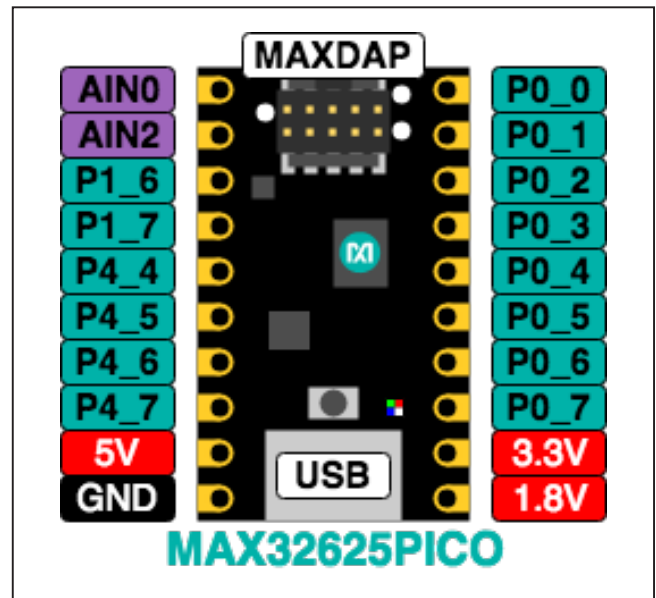4) Follow the instructions in the MAX32660 EV kit software user's guide.

Figure 2. MAX32625PICO DIP Pinout

Detailed Description of Hardware (or Software)

The MAX32660 EV kit board is a compact breakout board designed to make developing with the MAX32660 quick and easy. In addition to making all the GPIOs accessible at 100mil pitch headers, it also includes key components such as decoupling capacitors and a crystal for the RTC. A pushbutton, LED, and programming header are also included. The two 100mil pitch headers are oriented in parallel so that this board can be inserted into a standard solderless breadboard.

Power Supply

The MAX32660 only needs a single supply between 1.7V and 3.6V to operate. The primary power input for this EV kit is the VDDIO pin at header J2 pin 9. Power can also be applied through the debug header (J3 pin 1). The MAX32660 includes an internal LDO for the core supply. This LDO can be disabled so that a more efficient external regulator can be used. The EV kit provides access to VCORE at header J2 pin 8. VDDIO and VCORE are each decoupled with 10µF capacitors.

Programing and Debugging

The MAX32660 EV kit provides a debug header (J3) for access to the SWD and reset signals. This header is a 10-pin 50mil pitch header compatible with the standard Arm Cortex debug interfaces. The I/O supply (VDDIO) that is connected to the header is the primary supply pin for the MAX32660 and the board can be powered through the debug header (J3). A UART is also connected to this header. See the *Console UART* section for more details.

Console UART

UART1A Tx and Rx signals at port P0.10 and P0.11 are connected to the programming and debug header J3 pins 6 and 8 through 1kΩ resistors. This provides a convenient way to communicate with a PC though the virtual serial port available in Maxim's CMSIS-DAP debug adapter. The series resistors allow for these signals to be over-driven by other circuits without modifying the board.

Pushbutton

A pushbutton is connected to GPIO P0.12 for general user input. It is connected through a series resistor to protect against contention if this I/O is being used for other purposes.

Indicator LED

A red LED is connected to GPIO P0.13 for general user indication. It is connected with a MOSFET buffer so that it does not provide a significant load when used for other purposes.

Clocking

The IC operates from a system clock that can be selected from one of three on-chip oscillators from 8kHz to 96MHz. The external 32.768kHz crystal, Y1, provides the RTC with an accurate time base and is also used to calibrate the internal clock.

Table 1. J1 Header Pinout

PIN	NAME	ALTERNATE FUNCTION 1	ALTERNATE FUNCTION 2	ALTERNATE FUNCTION 3
1	P0.12	SPI1A_SCK	UART1A_CTS	—
2	P0.13	SPI1A_SS0	UART1A_RTS	—
3	P0.4	SPI0A_MISO	UART0A_TX	—
4	P0.3	I2C1A_SDA	SPI1B_SS0	TIMER_TMR0
5	P0.2	I2C1A_SCL	SPI1B_SCK	32KCAL
6	P0.1	SWDCLK	SPI1B_MOSI	UART1B_RX
7	P0.0	SWDIO	SPI1B_MISO	UART1B_TX
8	RSTN	—	—	—
9	GND	—	—	—

Table 2. J2 Header Pinout

PIN	NAME	ALTERNATE FUNCTION 1	ALTERNATE FUNCTION 2	ALTERNATE FUNCTION 3
1	P0.10	SPI1A_MISO	UART1A_TX	—
2	P0.11	SPI1A_MOSI	UART1A_RX	—
3	P0.5	SPI0A_MOSI	UART0A_RX	—
4	P0.6	SPI0A_SCK	UART0A_CTS	UART1C_TX
5	P0.7	SPI0A_SS0	UART0A_RTS	UART1C_RX
6	P0.8	I2C0A_SCL	SWDIO	—
7	P0.9	I2C0A_SDA	SWDCLK	—
8	VCORE	—	—	—
9	VDDIO	—	—	—

Table 3. J3 SWD Header Pinout

PIN	NAME	DESCRIPTION
1	VDDIO	Debug I/O Voltage
2	SWDIO	Serial-Wire Debug I/O (P0.0)
3	GND	Ground
4	SWDCLK	Serial-Wire Debug Clock (P0.1)
5	GND	Ground
6	UART_TX	Connect to UART Tx for debug serial console (P0.10)
7	NC	Key
8	UART_RX	Connect to UART Rx for debug serial console (P0.11)
9	DETECT	—
10	RSTN	Debug Reset Signal

Table 4. $\overline{\text{RST}}$

| PORT	NAME	DESCRIPTION
P0_13	LED	Red LED
P0_12	BUTTON	Button Input. Requires internal pullup to be enabled.
P0_10	UART Tx	Console UART Transmit Signal. Connected to debug header.
P0_11	UART Rx	Console UART Receive Signal. Connected to debug header.

Ordering Information

PART	TYPE
MAX32660EVKIT#	EV Kit

#Denotes RoHS compliance.

MAX32660 EV Kit Bill of Materials

ITEM	REF_DES	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	C1, C2	2	CL05A106MP5NUNC	SAMSUNG ELECTRONICS	10UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 10UF; 10V; TG=-55 DEGC TO +85 DEGC; TC=X5R
2	DS1	1	LTST-C190CKT	LITE-ON ELECTRONICS; INC.	LTST-C190CKT	DIODE; LED; STANDARD; RED; SMT (0603); PIV=5.0V; IF=0.04A; -55 DEGC TO +85 DEGC
3	J1, J2	2	PBC09SAAN	SULLINS ELECTRONICS CORP	PBC09SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 9PINS; -65 DEGC TO +125 DEGC
4	J3	1	FTSH-105-01-L-DV-K	SAMTEC	FTSH-105-01-L-DV-K	CONNECTOR; MALE; SMT; 0.05 (1.27MM) SMT MICRO HEADER; STRAIGHT; 10PINS
5	Q1	1	PMZB600UNE	NXP	PMZB600UNE	TRAN; 20V; N-CHANNEL TRENCH MOSFET; NCH; SMT; PD-(0.36W); I-(0.6A); V-(20V)
6	R1, R7, R8	3	CRCW04021K00FK; RC0402FR-071KL	VISHAY DALE; YAGEO PHICOMP	1K	RESISTOR; 0402; 1K; 1%; 100PPM; 0.0625W; THICK FILM
7	R2, R3	2	CRCW0402499RFK	VISHAY DALE	499	RESISTOR; 0402; 499 OHM; 1%; 100PPM; 0.0625W; THICK FILM
8	R4, R9, R10	3	CRCW040210K0FK; RC0402FR-0710K	VISHAY DALE; YAGEO PHICOMP	10K	RESISTOR; 0402; 10K; 1%; 100PPM; 0.0625W; THICK FILM
9	S1	1	B3U-1000P	OMRON	B3U-1000P	SWITCH; SPST; SMT; STRAIGHT; 12V; 0.05A; ULTRA-SMALL TACTILE SWITCH
10	U1	1	DS28E05R+	MAXIM	DS28E05R+	IC; EPROM; 1-WIRE EEPROM; SOT-23
11	U2	1	MAX32660	MAXIM	MAX32660	IC; LOW POWER ARM CORTEX-M4 WITH FPU-BASED SOC FOR WEARABLE SENSORS;
12	Y1	1	ECS-.327-6-12	ECS INC	32.768KHZ	CRYSTAL; SMT 2.0 MM X 1.2 MM; 6PF; 32.768KHZ; +/-20PPM; -0.03PPM/ DEGC2
13	PCB	1	MAX32660	MAXIM	PCB	PCB:MAX32660

MAX32660 EV Kit Schematic
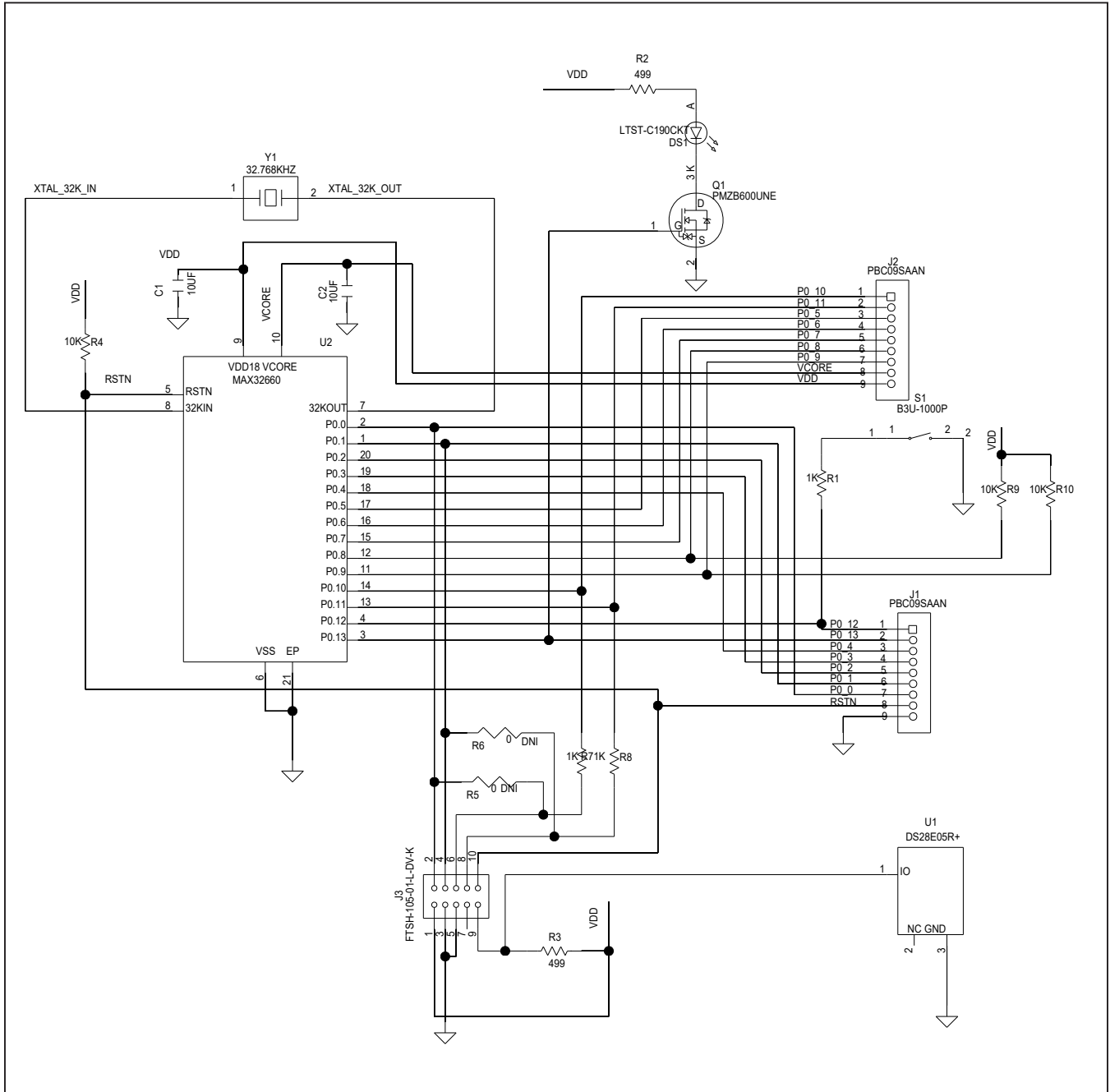
Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	2/18	Initial release	—