Evaluates: MAX21000

General Description

The MAX21000 evaluation board (EV board) adapter provides the hardware necessary to easily connect the MAX21000 ultra-accurate, low-power, 3-axis digital output gyroscope to an existing system.

The EV board includes the MAX21000, an LDO regulator (MAX1819), and jumpers.

EV Board Contents

- Assembled circuit board, including:
 - · MAX21000 inertial measurement unit
 - MAX1819 low dropout regulator

Features

- Easy Evaluation of the MAX21000 in an Existing System
- All Device Pins Are Available on a Standard Connector
- On-Board LDO That Can Be Used for Voltage Regulation
- Evaluation Software Tool Available
- RoHS Compliant
- Proven PCB Layout
- Fully Assembled and Tested

Ordering Information appears at end of data sheet.





Figure 1. MAX21000 EV Board Photo: Top View (left), Bottom View (right)



Quick Start

Required Equipment

- MAX21000 EV board
- System able to communicate through the I²C or SPI interface
- 1.8V to 3.3V power supply

Procedure

The EV board is fully assembled and tested. Follow the steps below to verify board operation:

- Using connector P1, connect to SPI or I²C. Other I²C/ SPI lines can be reached at connectors P2 and P3, if necessary.
- 2) Supply the EV board adapter through the P1 connector, providing directly VDD_CORE and VDD_IO.
- Connector JP4 gives the option where to connect the analog supply of the MAX21000. The V_{DD} pin can also be supplied directly from the VDD_CORE or VDD_ REG (regulated voltage through MAX1819 LDO).
- 4) The device is now able to communicate with the system.

Jumper Descriptions

JP2 Jumper

The JP2 jumper is used to set the CS_MAIN manually to VDD_IO.

Note: This jumper can be shorted in case I²C interface is used. The board also lets the user populate I²C pullup resistors R6, R7 in case these pullup resistors are missing in the main system. R6 and R7 are unpopulated by default.

JP3 Jumper

The JP3 jumper is used to set the SDO_SA0_MAIN manually to either VDD_IO or GND.

JP4 Jumper

JP4 jumper is used to set the V_{DD} pin of the MAX21000 to one of the VDD_IO, VDD_CORE or VDD_REG voltages. By default, the jumper configuration is set to connect V_{DD} pin of the MAX21000 to VDD_CORE. JP4 jumper can also be used to measure the power consumption of the MAX21000 in case the digital multimeter is used in current mode and connected between pins 3-4.

Note: For proper operation of the MAX21000, the potential on V_{DDIO} needs to be set lower than V_{DD} . Refer to the *Electrical Characteristics* table in the MAX21000 data sheet. In case JP4 is set, connect pins 5-6 as shown in Table 3. VDD_CORE is supplied by the on-board regulator (MAX1819), VDD_REG, and in this configuration, V_{DDIO} has to be set lower than 1.8V for proper operation of the MAX21000.

JP5 Jumper

The JP5 jumper is used to set the regulator input voltage to either VDD_CORE or VDD_AUX.

Table 1. JP2 Jumper Setting

SHUNT POSITION	DESCRIPTION	
1-2	Chip select pin for I ² C/SPI (CS_MAIN) is shorted to VDD_IO (logic-high)	

Table 2. JP3 Jumper Setting

SHUNT POSITION	DESCRIPTION
1-2	SPI serial data out or I ² C slave address LSB (SDO_SA0_MAIN) is shorted to VDD_IO (logic 1).
2-3	SPI serial data out or I ² C slave address LSB (SDO_SA0_MAIN) is shorted to GND (logic 0).

SHUNT POSITION	VDD_CORE_DUT	VDD_CORE	VDD_IO	DESCRIPTION
1-2	VDD_IO	_	1.8V to 3.3V	Analog supply of the device (VDD_CORE_DUT) is connected to the digital supply (VDD_IO).
3-4	VDD_CORE	1.8V to 3.3V	—	Analog supply of the device (VDD_CORE_DUT) is connected to the VDD_CORE input (default setting).
5-6	VDD_REG	_	_	Analog supply of the device (VDD_CORE_DUT) is connected to the regulated power output. The output voltage of the regulator can be adjusted via resistors R1 and R2 (VDD_REG = 1.8V at default setting).

Table 3. JP4 Jumper Setting

Table 4. JP5 Jumper Setting

SHUNT POSITION	DESCRIPTION		
1-2	Voltage regulator input is shorted to the VDD_AUX voltage.		
2-3	Voltage regulator input is shorted to the VDD_CORE voltage (default setting).		



Figure 2. MAX21000 EV Board Schematic

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Figure 3. 3D View of the MAX21000 EV Board Layout



Figure 4. MAX21000 EV Board Layout—Top View



Figure 5. MAX21000 EV Board Layout—Bottom View

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Component List

DESIGNATOR	COUNT	DESCRIPTION	
C1, C2	2	Capacitors 100nF (10V 10% X7R 0402)	
C4	1	Capacitor 1µF (10V 10% X6S 0402)	
C5	1	Capacitor 3.3µF (6.3V 10% X5R 0402)	
P1, P3	2	Headers 4x2, 2.54mm pitch	
P2, P4	2	Headers 3x2, 2.54mm pitch	
U1	1	MAX21000 IMU	
FL1 1		Inductor 2.7μF (10μA 10% 2Ω 0402)	
JP2	1	Jumper, 2-pin through hole	
JP3	1	Jumper, 3-pin through hole	

DESIGNATOR	COUNT	DESCRIPTION
JP4	1	Header 3x2 (2.54mm) or 0805 surface mount 0Ω resistor
JP5	1	Jumper, 3-pin (0402 surface mount 0Ω resistor)
U2	1	MAX1819 regulator (500mA LDO)
R4	1	Resistor 0Ω (1/10W 0603)
R3 1		Resistor 100kΩ (1% 1/16W 0402)
R1	1	Resistor 22kΩ (1% 1/10W 0603)
R2	1	Resistor 49.9kΩK (1% 1/10W 0603)
R5, R6, R7	3	Resistors (do not mount)

Ordering Information

PART	PIN-PACKAGE	
MAX21000EVBRD#	EV board	

#Denotes RoHS compliant.

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Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	3/13	Initial release	—
1	3/15	Revised EV kit data sheet	1–5

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