

PmClkRtc

This Pmod™ compatible module provides a very low power battery backed RTC module. In addition, it offers an exchangeable piggyback board with a high precision oscillator which offer very strong holdover capabilities. It has two SMA connectors to make use of the generated clock from the oscillator or to send out a Pulse Per Second.

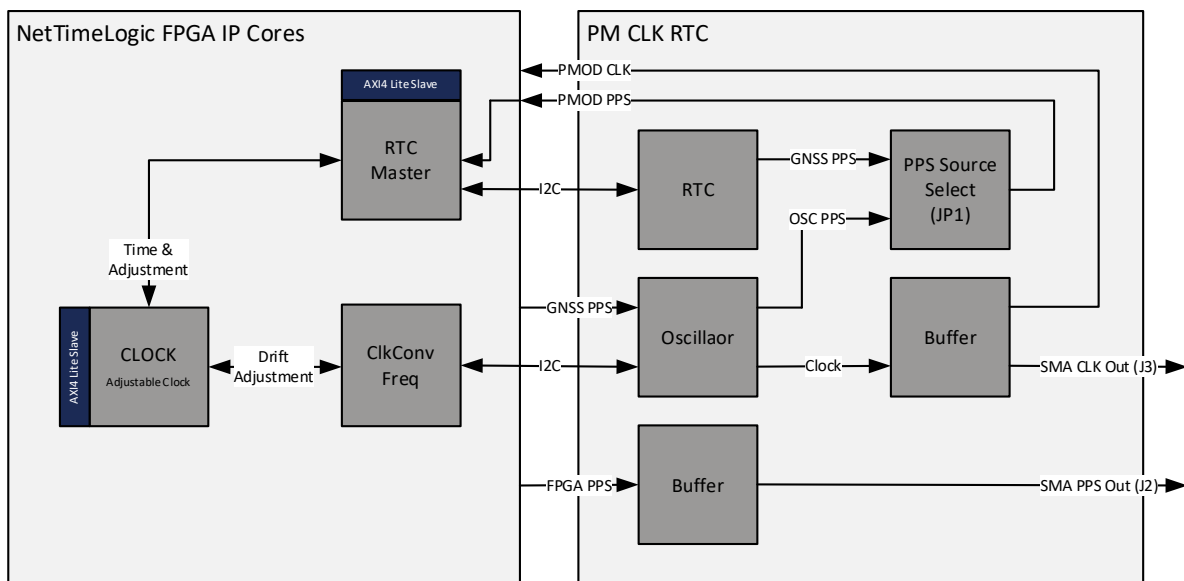
Key Features:

- Very low power Battery backed Real Time Clock (RTC)
- Extremely high precision oscillator on an exchangeable piggyback board
- Clock and Pulse Per Second (PPS) available on SMA connectors @ 3V3
- Oscillator and RTC accessible via two dedicated I2C lines
- Compatible NetTimeLogic IP-Cores: RTC Master, Adjustable Clock (Frequency Converter)

Module:



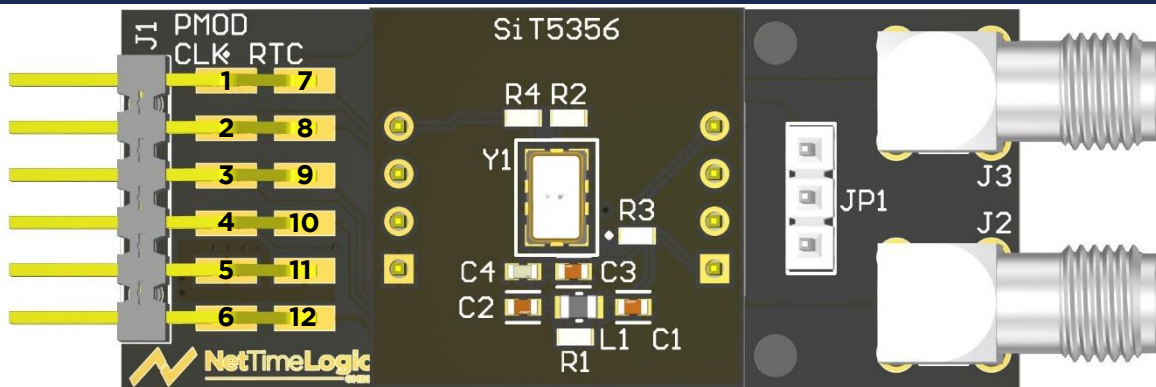
Block Diagram:



Specification:

RTC	RV-3028-C7 which is an extremely low-power (45nA) RTC with very high time accuracy (1ppm @ 25°C)
Oscillator	SiT5356 which is a 100 ppb precision MEMS Super-TCXO. The default clock rate is 10MHz, other options are available.
I2C	Two separate I2C lines on 3V3 with pull-ups on the board (Address RTC: 0x52; Address Oscillator: 0x60)
Config	Jumper (JP1) on upper position → RTC PPS to PM Pin 7 Jumper (JP1) on lower position → RTC PPS to PM Pin 7
Battery	CR1026
Power	100mA @ 3.3V; With battery <50nA
Output	Clock Output (J3): ~12mA @ 3.3V PPS Output (J2): ~24mA @ 3.3V

Pmod™ Pins and Module Overview:



Pin	Signal	Direction	Description
Header J1 (Pmod™)			
1	Clk Out	Out	Oscillator clock output from the PM module (3V3)
2	SCL for Clk	In	I2C SCL line for the Oscillator
3	SCL for RTC	In	I2C SCL line for the RTC
4	GNSS PPS In	In	PPS input from e.g., a GNSS receiver which can be used to discipline an oscillator
5	GND		GND connection to the carrier board
6	VCC		3.3V supply from the carrier board
7	PPS Out	Out	PPS output from the PM module (3V3) which can be the one from the Oscillator or from the RTC (via JP1)
8	SDA for Clk	In/Out	I2C SDA line for the Oscillator
9	SDA for RTC	In/Out	I2C SDA line for the RTC
10	FPGA PPS In	In	PPS input from the FPGA which goes to the SMA Connector J2
11	GND		GND connection to the carrier board
12	VCC		3.3V supply from the carrier board
SMA			
J2	PPS Out	Out	PPS Output from the FPGA via a buffer
J3	CLK Out	Out	CLK Output from the Oscillator via a buffer