

# MB-TILT- 400PRO

- ❑ SNAP Motherboard
- ❑ 10/100 BaseT Ethernet, RJ45
- ❑ RS232 DB9(f) connector
- ❑ 1-Wire, RJ12 connector
- ❑ 1-Wire iButton clip socket
- ❑ 1-Wire temperature sensor
- ❑ CAN 5x2 header
- ❑ I<sup>2</sup>C buffered to JSimm socket
- ❑ 8xdigital outputs to JSimm Socket



## Introduction

The **MB-TILT-400Pro** is a moderately priced, OEM socket board. It enables the use of SNAP with a wide-range of interfaces: 10/100 BaseT Ethernet, serial x 2, CAN and 1-Wire, and one JSimm expansion slot. It is physically small - 100x100 mm - and fits into standard European enclosures.

## Features

Parameter	TILT-400PRO
<b>Simm72 socket</b>	One vertical Simm72 socket for SNAP
<b>Simm30 socket</b>	One vertical Simm30 JSimm expansion socket. Only the I <sup>2</sup> C, SPI, 1-Wire, and asynchronous serial lines are connected to the JSimm socket. There is an SPI-based output register on the socket board which drives eight of the JSimm I/O lines as outputs. This allows for a lot of expansion options such as I <sup>2</sup> C or SPI, ADC, DAC, motor controllers, LCD interface, 1-Wire, etc.
<b>RS232 Serial I/O</b>	DB9 female as DCE with DTR enable jumper. Used as a general serial port. No hardware handshake signals. Same as STEP board's serial I/O.
<b>Serial1 (1Wire RJ12)</b>	Dedicated to 1Wire via an RJ12 jack.
<b>RS232 Serial4</b>	DB9 male as DTE for RS232, with hardware handshake lines. This provides a full-featured RS232 port even with 1Wire active on serial1. No IrDA support (since there is no 16X IrDA clock available).
<b>CAN header 5x2</b>	CANOpen pinout 100-mil shrouded 5x2 header, same as STEP board and TILT CAN. Uses standard adapter to CANOpen DB9, or you can just use ribbon cable for short distance (fifty feet or less) desktop CAN networks between multiple boards.

Ethernet 10/100 BaseT	RJ45 Ethernet jack now supports 10 and 100 BaseT, with surge suppression.
I2C Buffered	The Philips 9515 repeater buffers the I2C lines from SNAP to the JSimm connector
SPI with address expansion	SPI plus three additional address bits for JCX SPI address expansion are provided on the JSimm connector. This supports up to 24 SPI chip select locations when used with the new JCX CPLD SPI address expander.
1-Wire RJ12 and iButton socket	Dallas 1-Wire is available on the RJ12 connector (with standard Dallas/Systronix pinout) and on the JSimm connector as well as the iButton clip. The RJ12 connector provides power both raw and 5 VDC. The iButton socket by default is on the external 1-Wire net but can be moved (with paste jumpers) to the internal 1-Wire net for use with SHA iButtons or other authentication or protection purposes. Since the internal 1Wire network is not as rugged as the external, you should not have users plug iButtons repeatedly on the internal 1Wire net.
Header for Embedlet sensor net expansion	Shrouded header provides easy plug-on access to SPI, I2C, 1Wire and power. Requested by the open-source <a href="#">Embedlet project</a> and by educators for classroom use.
8 Digital Outputs	A SPI shift register drives eight JSimm lines. Three may be used for SPI address expansion, leaving at least five for your use as general JSimm output bits. All eight can be used as outputs if you are not using SPI.
NetBoot support	Support for a DS2430 or DS2433 Netboot device on the SNAP internal 1-Wire net for the new TIN1400 NetBoot options.
XML Tagging and ID support	Support for a 1 kbit DS2430 or 4 kbit DS2433 Netboot device, with unused space available for node ID, XML device tagging, etc. These devices are on the SNAP internal 1Wire bus which is isolated from the external 1Wire network.
On-board "external" 1-Wire devices	Serial1 is dedicated to 1Wire support on SNAP through the on-board DS2480B. On this "external" 1Wire network are a DS18S20 temperature sensor and an iButton clip. You can also attach an iButton device by plugging a Blue Dot reader into the 1Wire RJ12 jack.
Reset pushbutton	Has the same function as a DTR reset when pressed
Power supply	Rugged switching regulator with 8-24 volts AC or DC input, 5.5x 2.5 mm power jack, same as STEP. Reverse polarity protected (since it accepts AC). Provides 5 VDC 1 Amp to the SNAP sockets, JSimm, 1Wire network, etc.
Form factor	100x100 mm