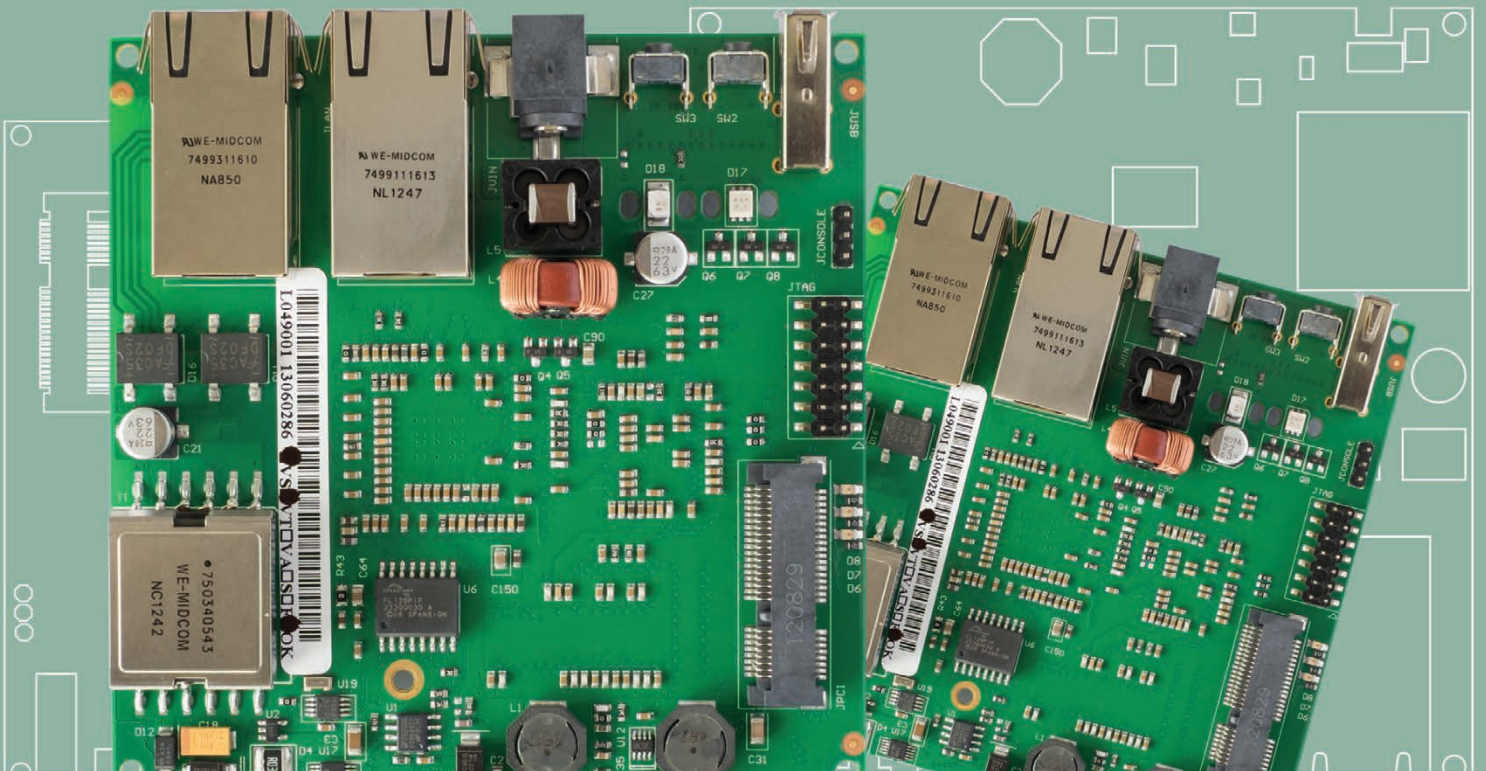
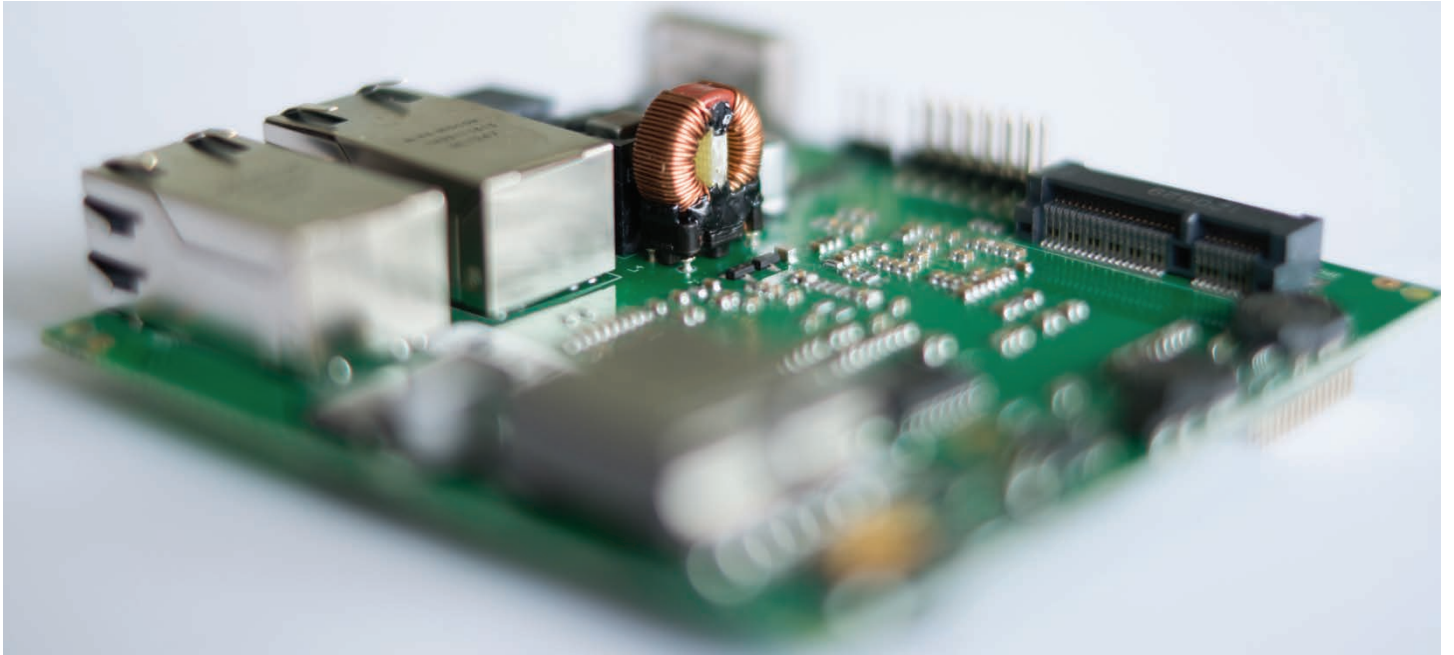


SPRINGMOLE



your ideas > connected!

YOUR IDEAS CONNECTED!



Springmole FIRE is the OEM enterprise level networking solution **designed by Wi-Next's R&D Team** to enable every type of **IOT application**, from sensors to robotics, from M2M to Building Automation.

Its **unique hardware architecture** gives to developers, integrators, researchers and DIY enthusiasts a series of **expansion ports that can interface sensors, actuators or control solutions** without compromising networking performance.

The expansion ports are available through standard connectors and can be used directly (4 Digital IOs and 2 ADCs) or through dedicated add-on modules (RS485, Twin XBEE). All the documentation required to implement custom expansions is freely available on the project website <http://www.springmole.com>

Springmole FIRE really stands out because of the number of wireless and wired network interfaces available: **Wi-Fi 802.11abg/n , 802.11ac, 2 to 4 Gigabit Ethernet ports** (one with 802.3af Active PoE support) and a **USB 2.0 port designed to withstand loads of up to 1000mA supporting the power needs of Hard Disks and external 3G/ 4G modem**. Furthermore, a **microSD slot** allows to increase local storage to the needs of specific application scenarios (logging, caching).

Springmole FIRE is also designed to be **Environmentally Friendly**: it implements **802.3az Green Ethernet standard** and features power consumption and board temperature sensors.

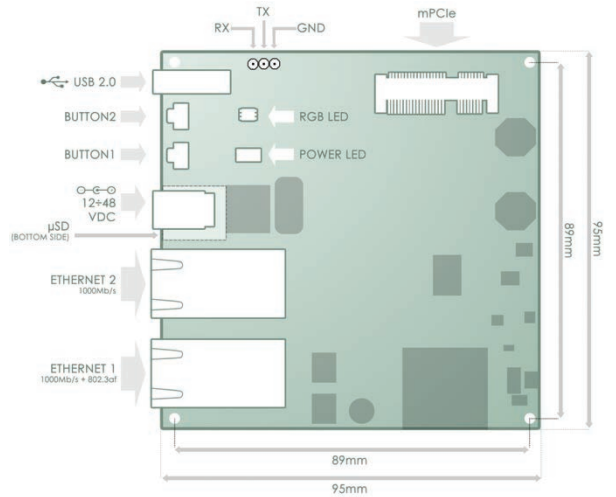
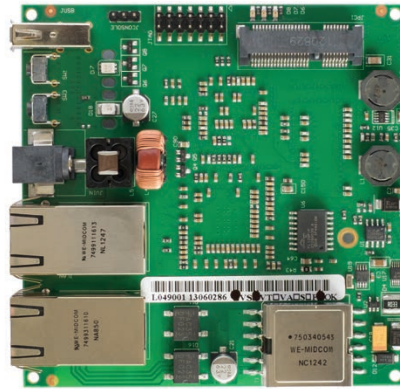
Springmole AIR shares the same core connectivity capabilities of Springmole FIRE making it even more attractive for **classic networking and cost sensitive applications**.

Springmole FIRE and **Springmole AIR** also thanks to the **full support of the Open Source operating system OpenWRT** (based on Linux, freely available and royalty-free) are the best OEM solutions for networking and IOT.

Wi-Next's R&D staff created and constantly updates the project website at <http://www.springmole.com> to share the complete technical documentation and the full SDK, and to aggregate a developers and enthusiasts community in the development of applications, mods and add-ons.

Springmole technology is completely designed and Made in Italy.

SPRINGMOLE FIRE



TECHNICAL OVERVIEW

CPU AND MEMORIES

CPU	Atheros AR7242 (400Mhz)
RAM	32 MB
FLASH	16MB
ADDITIONAL STORAGE	uSD card slot + USB 2.0

PCI-EXPRESS SUBSYSTEM

mPCI-Express connector supports WI-FI adapters.

USB SUBSYSTEM

Type A USB 2.0 port with 1000mA max current output (e.g. for powering USB Disk Drives).

LED SUBSYSTEM

LED	COLOR	DESCRIPTION
0	Green	Power Good
1	RGB	User Programmable

POWER SUBSYSTEM

Power from 12 to 48VDC can be applied via:

- Power Jack
- 802.3af ethernet port
- expansion connector

I/O SUBSYSTEM

Microchip MCP23008 gpio expander connected according to the following table:

PIN	DIRECTION	DESCRIPTION
0	IO	to expansion connector
1	IO	to expansion connector
2	IO	to expansion connector
3	IO	to expansion connector

RTC SUBSYSTEM

Maxim DS1339U-2 Real-Time-Clock. Optional Backup battery on expansion connector.

ETHERNET SUBSYSTEM - AR8328

Atheros AR8328 fully programmable Gigabit Ethernet switch supporting 802.3az Green Ethernet Standard.

PORT	CONNECTION
0	to AR7242 (eth0)
1	to expansion connector
2	to onboard connector (inner)
3	to onboard 802.3af connector (outer)
4	to expansion connector

ADC/SENSORS SUBSYSTEM

ADS1015 4 channels ADC converter.

CHANNEL	CONNECTION
1	to expansion connector
2	to expansion connector
3	to current sensor
4	to temperature sensor

EXPANSION CONNECTORS (Bottom side)



GND	GM1_RKEN
GM1_SE_RGM0	GM1_RKCE
RSP0	GM1_RKED
RSP0	GM1_RKID1
TKR0	GM1_RKID2
TKR0	GM1_RKID3
SPL_SCK	GM1_TKR0
SPL_SCK	GM1_GTKCK
SPL_SDI	GM1_TKR0
GDND	GM1_TKD1
GDND	GM1_TKD2
GDND	GM1_TKD3
+5V	USB_D-
+5V	USB_D+

JEXP1



IC_SCL	VBACKUP
IC_SDA	ANAIOG2
IC_GPHD3	ANAIOG1
IC_GPHD2	GND
S.P	GND
S.N	GND
S.P	GPIO0/ISSU0
S.N	GPIO0/ISSU0
IC_GPHD1	GPIO0/ISSU0
IC_GPHD0	GPIO7
VIN_P1	GPIO0/TD0
VIN_P1	GPIO0/TD1
VIN_P1	+5V
VIN_P1	+5V

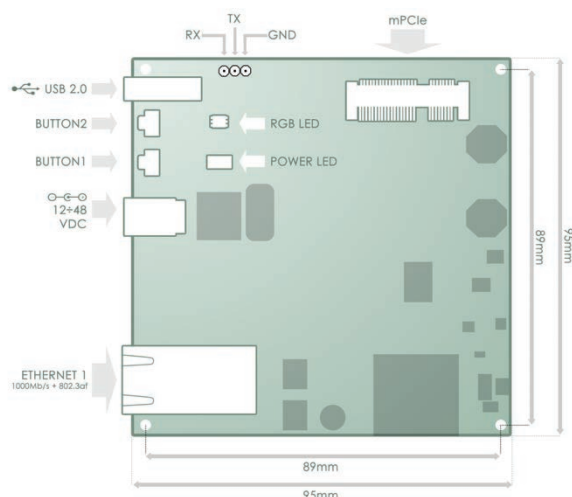
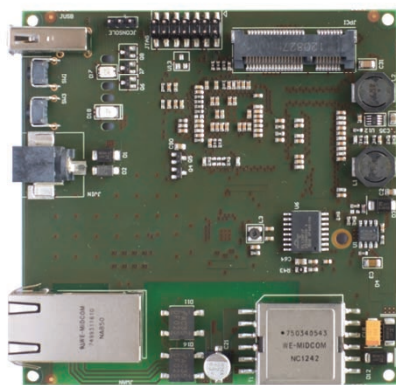
JEXP2



LED_LINK1004_3	LED_LINK1004_3
LED_LINK1004_5	LED_LINK1004_5
LED_LINK1004_6	LED_LINK1004_6
LED_LINK1004_7	LED_LINK1004_7
GND	GND
CH0_TKR2_N	CH0_TKR2_N
CH0_TKR2_P	CH0_TKR2_P
CH0_TKR2_N	CH0_TKR2_N
CH0_TKR2_P	CH0_TKR2_P
CH0_TKR1_N	CH0_TKR1_N
CH0_TKR1_P	CH0_TKR1_P
CH0_TKR1_N	CH0_TKR1_N
CH0_TKR1_P	CH0_TKR1_P
CH0_TKR0_P	CH0_TKR0_P
GND	GND
BMDC	BMDC

JEXP3

SPRINGMOLE AIR



TECHNICAL OVERVIEW

CPU AND MEMORIES

CPU	Atheros AR7242 (400Mhz)
RAM	32 MB
FLASH	16MB
ADDITIONAL STORAGE	USB 2.0

PCI-EXPRESS SUBSYSTEM

mPCI-Express connector supports WI-FI adapters.

USB SUBSYSTEM

Type A USB 2.0 port with 1000mA max current output (e.g. for powering USB Disk Drives).

ETHERNET SUBSYSTEM

Supporting 802.3az Green Ethernet standard and Atheros® Edge® Technology

LED SUBSYSTEM

LED	COLOR	DESCRIPTION
0	Green	Power Good
1	RGB	User Programmable

POWER SUBSYSTEM

Power from 12 to 48VDC can be applied via:

- Power Jack
- 802.3af ethernet port

AVAILABLE VERSIONS

CODE	PRODUCT
7770001	Springmole Fire

CODE	PRODUCT
7770002	Springmole Air

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