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# Introduction to fit-PC3

At first glance fit-PC3 may look like just another compact PC. In fact, fit-PC3 is our most advanced miniature computer to-date. Nearly two years in development, we designed fit-PC3 from the ground up to implement what we learned from the previous five fit-PC generations and from the valuable feedback of thousands of customers.
fit-PC3 is well worth taking a closer look at – this introduction may be a good starting point.

The key features of fit-PC3 are -

- Excellent balance between performance and low power
- Extremely rich I/O
- Innovative modular design
- Ruggedized yet attractive fanless design

We hope you like the result.

**Irad Stavi**
**fit-PC Product Manager**
**CompuLab**

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# System

fit-PC3 is designed around the AMD Embedded G-Series Fusion APU providing:

- Dual-core 64 bit x86 CPU @ 1.0–1.65 GHz
- AMD Radeon HD 6xxx GPU

The APU is supplemented by up to 8 GB DDR3-1333.

## Graphics

For a miniature fanless system - fit-PC3 provides extremely powerful graphics features

- Dual-head DisplayPort (up to 2560x1600) and HDMI (up to 1920x1200) incl. audio
- HDMI 1.4 and stereo-3D support in fit-PC3 Pro
- DirectX 11, OpenGL 4.0, OpenCL
- 1080p Blu-Ray playback support, UVD 3 engine with native H.264, VC-1, MPEG2, and DivX

## Low power

The fit-PC product line is recognized as the most power efficient in its category and fit-PC3 is no exception. The T40E model consumes just 7W at Windows 7 when idling, or up to 15W under full system load with dual head display. Each model's consumption reflects the performance and efficiency of the corresponding APU.

# I/O

Out-of-the-box fit-PC3 provides a set of interfaces unmatched by any computer of a similar size:

- Dual-head display HDMI + DisplayPort
- Digital 7.1 S/PDIF and analog 2.0 audio, both input and output
- Gigabit Ethernet
- WiFi 802.11 b/g/n + BT combo with dual antennas
- 2 USB3 ports + 2 USB2 ports
- 2 eSATA ports
- Bay for 2.5" SATA HDD
- 2 mini-PCIe sockets / 1 mSATA
- Serial RS232 port
- IR Receiver

These interfaces are likely to satisfy the majority of applications, but not all. For example – what about network routing? This is where the uniqueness of fit-PC3 is revealed – in modularity.

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# Modularity

Compactness and modularity are often contradicting design goals. Perhaps the most striking feature in the design of fit-PC3 is the degree of modularity and hardware serviceability without compromising on neither size nor looks of the device.

## FACE Module (Function And Connectivity Extension Module)

The front-facing panel of fit-PC3 can incorporate any custom functionality and I/O.
We call it **FACE Module** (Function And Connectivity Extension Module). Examples:

- A FACE Module with 4 GbE ports and 6 USB ports for networking applications
- Combine GPIOs, ADCs, DACs and serial ports for instrumentation
- Add multiple frame-grabbers for a surveillance computer

FACE Module is implemented by an internal extension-board and a simple sheet-metal panel. CompuLab is designing multiple FACE Modules and opens the interface with complete documentation and reference designs for other companies to design their own FACE Modules.
The I/O brought to the FACE Module resembles extensibility of a desktop:

- 4 PCIe lanes
- 6 USB2 + 2 USB 1.1
- 25 GPIOs
- 2 SATA
- 2 SMBus
- LPC

## One-screw service door

Installing or replacing hard-disk, RAM and mini-PCIe modules (2 in fit-PC3) has never been easier. All it takes is opening one screw at the bottom of fit-PC3 and sliding-out the service door with the hard-disk attached. Then there is easy access to the 2 SODIMMs and 2 mini-PCI sockets.

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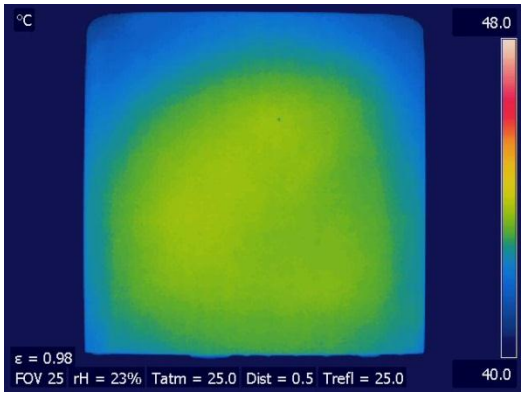
# Design and build

Most commodity small PCs follow identical design rules – a heat-sink on the CPU with a centrifugal fan blowing over it, all encased in a plastic housing. fit-PC design is radically different – focusing on miniaturization, robustness, reliability and silent operation rather than making the cheapest possible system.

## Thermal design

All fit-PCs are designed for fanless operation at the smallest possible form-factor using the most reliable cooling mechanism in existence – heat dissipation through the housing itself. fit-PC3 is no different, but it takes the thermal design a step further –

- Internal passive heat-spreader to eliminate hot-spots.




- Power regulation based on both CPU and case temperature monitoring. If case temperature exceeds a threshold the CPU is underclocked until temperature is back within permitted range. The threshold can be configured in BIOS.

## Industrial design

Each part of the metal housing of fit-PC3 is 3D modeled and produced by die-casting for perfect fit. The streamlined design under 1” thick may be misleading – but fit-PC3 is one of the toughest computers on the market – easily withstanding industrial, automotive and outdoors installations.

## Embedded grade internals

CompuLab has been making embedded computer-on-modules for over 15 years. We know that using quality parts results in returning customers. All electronic components in fit-PC3 are embedded grade with long term availability and are RoHS compliant. The standard warranty on fit-PC3 is 2 years.