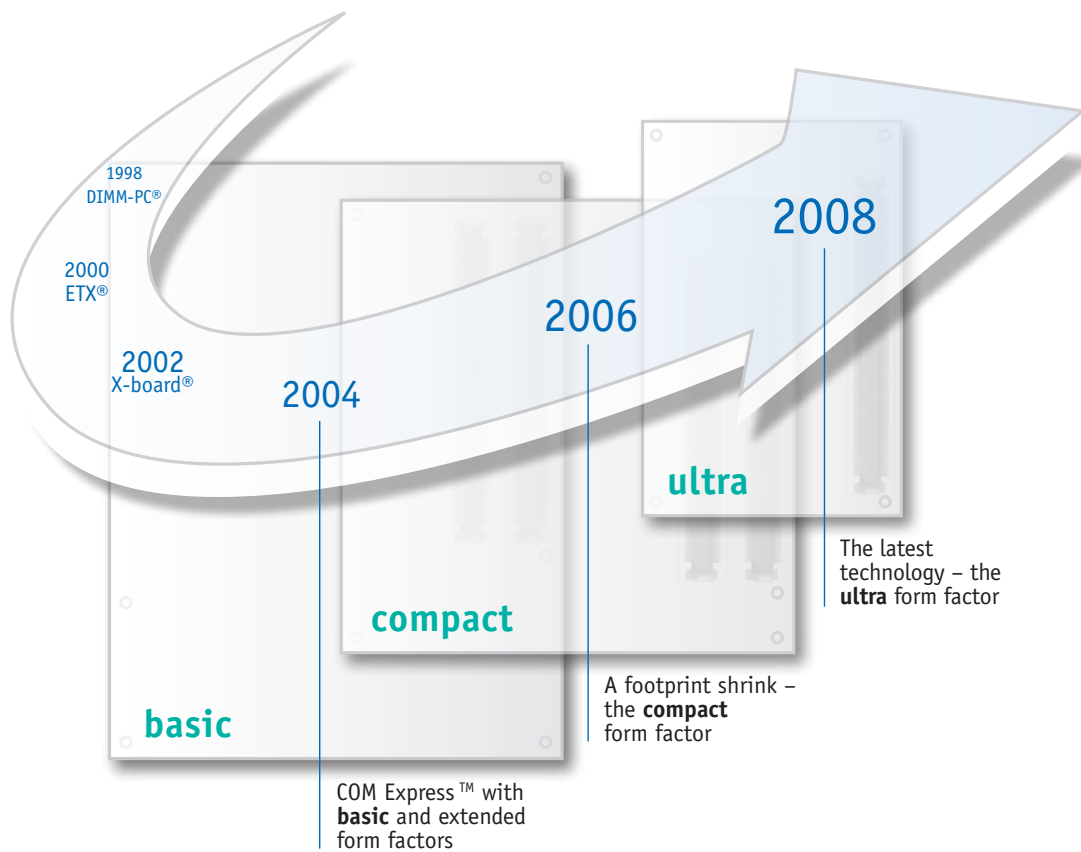


# » COM Express™ «



## One Concept, Ever Smaller!

- » Rely on a future-proof and worldwide established standard
- » Benefit from more than 10 years COM experience
- » Win with 100 % compatibility

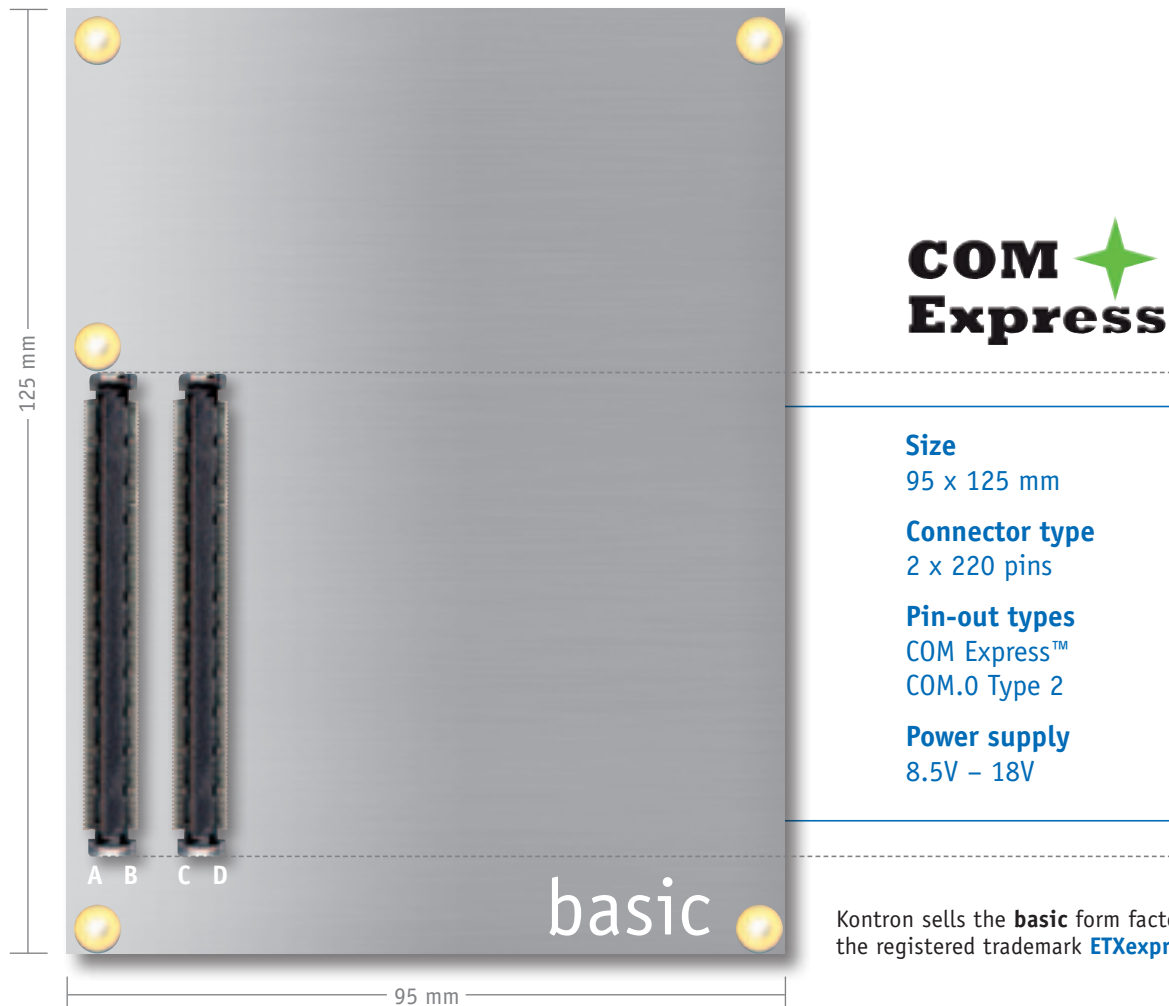
# » One Concept, Ever Smaller «

## Interchangeability – Rely on a future-proof and worldwide established standard

Currently, **basic** is the most commonly known form factor, the reason being that older computer technology needed more space on the module. With new technology providing more space, **basic** today fulfils nearly all imaginable needs. It is easy to implement these very powerful modules, which are equipped with an abundance of features.

This has led to the latest **basic** COMs leading the way in performance and features comparisons. Standardized heatspreader dimensions ensure easy control of heat dissipation and are an important consideration for true interchangeability. COM Express™ **basic** has dimensions that are the most similar to the ETX® modules. The COM Express™ **basic**, even in its physical respects, therefore continues the triumphant progress of ETX®.

Original size

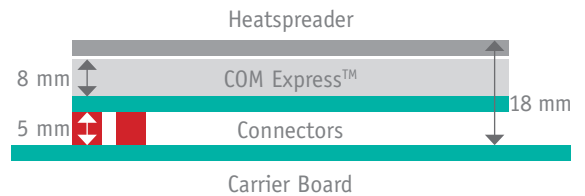


Kontron sells the **basic** form factor under the registered trademark **ETXexpress®**.

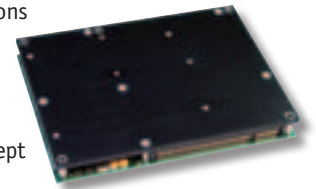
## Same placement – benefit from more than 10 years COM experience

Newer chip technology led to lower space requirements and enabled module vendors to shrink the footprint, resulting in the **compact** (95 x 95 mm) being introduced. The primary difference between the compact and basic form factor is the overall physical footprint. In terms of interfaces, pin-out and connector placement, the compact is compatible with the basic form factor. Even its mounting holes line up with the holes of the basic and the cooling solution concept is the same. This assures interchangeability between basic and compact on Carrier Boards.

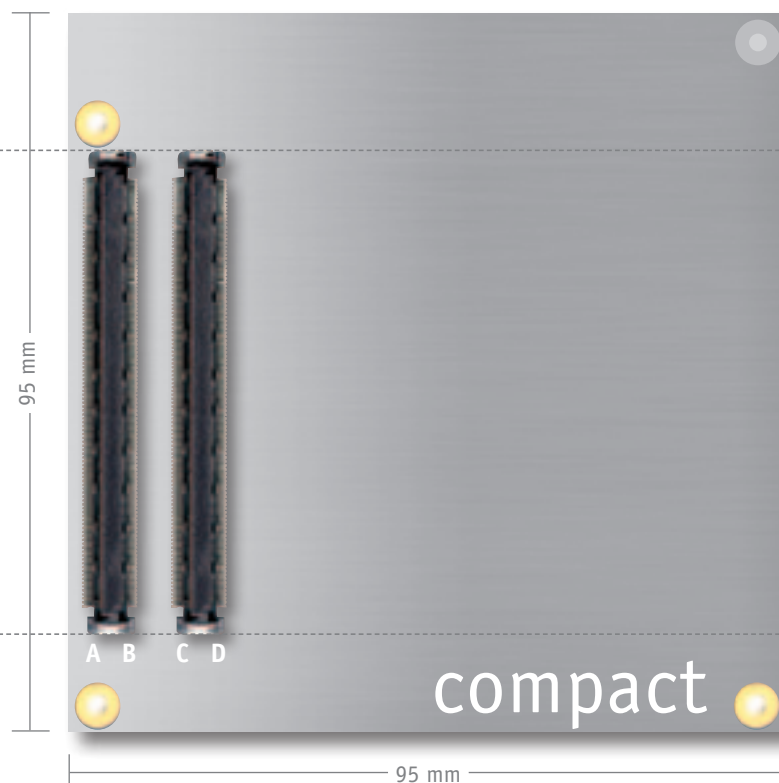
### COOLING CONCEPT



- » Heatspreader offers standardized mechanical interface for heat dissipation
- » All COM Express™ modules have same mechanical dimensions
- » Easy integration
- » Independence
- » Easy replacement
- » Simple cooling concept



Original size



#### Size

95 x 95 mm

#### Connector type

2 x 220 pins

#### Pin-out types

COM Express™  
COM.0 Type 2

#### Power supply

8.5V – 18V

Kontron sells the **compact** form factor under the registered trademark **microETXexpress®**.

## Common connector – win with 100 % compatibility

The **ultra** is the latest addition to the COM Express™ pin-out compatible family and is merely the size of a credit card. With ultra, COM Express™ technology reaches the classic Small Form Factor world. Extremely low power consumption and tiny dimensions make ultra suitable for mobile and battery-powered applications while well-known and proven COM Express™ concepts are used: ultra offers optimum compatibility with the compact and basic form factors. To ease handling, the power supply range was extended downwards to include 5V, as used by other Small Form Factors.



## COM EXPRESS™ EXTENSION

The Computer-on-Modules – Industrial Group (COM-IG) is an independent association which defines Computer-on-Modules according to the market needs. Today, COM-IG works to improve the PICMG® COM Express™ specification: the COM Express™ Extension. It is consistent with the COM Express™ specification, but overcomes gaps which experience has identified in the field, including the addition of hardware and software definitions. The extension therefore also supports interchangeability at the software level.

### Important extensions for hardware:

- » Form factor sizes **compact** and **ultra**
- » Wide range of input power
- » SDIO usage of GPIO ports
- » Thermal control

### Important extensions for software:

- » TPM support and TCG 1.2 compliance
- » Smart Battery support
- » Legacy Super I/O support via LPC in BIOS

Please visit <http://www.com-ig.org>

### Size

55 x 84 mm

### Connector type

1 x 220 pins

### Pin-out types

COM Express™  
COM.0 Type 1

### Power supply

5V – 14V

Kontron sells the **ultra** form factor under the trademark **nanoETXexpress**.

# » Benefits in a nutshell «

## Connectors are the key to success

PICMG® defined, within the COM Express™ standard, different pin-out schemes based on either one or two 220-pin connectors positioned side-by-side. These connectors are of proven design and are already widely used – not only in the COM sector. They offer shock and vibration resistance as well as an extraordinarily high data bandwidth which makes supporting future interfaces such as PCI Express 2.0 a feasible migration path for solutions that are built around these COMs.

## Investment protection included

The first connector (rows A and B) has been designed to support today's state-of-the-art interfaces. The second connector's pin-out is flexible, since the field of applications can be varied: The illustration shows the commonly used Pin-out Type 2 for connector rows A, B, C and D. The ultra form factor is based on Pin-out Type 1, which is row A and B only. The cleverly chosen pin-out definition and the placement of the connectors assure interchangeability among basic, compact and ultra and also future security and high investment protection.

COM Express™ Pin-out Type 1 (rows A and B only) and Pin-out Type 2 (rows A, B, C and D).



PEG (PCI Express for Graphics) and SDVO on row C and D are multiplexed.

### You benefit from:

- » Scalability in performance
- » Scalability in size
- » Shortest time-to-market
- » Vendor independence
- » Leverage of knowledge
- » Simplified development
- » Long-term availability
- » Numerous product and services vendors

# » Learn more «

## ABOUT PICMG® AND COM EXPRESS™



In 1994, PICMG® (PCI Industrial Computer Manufacturers Group) was founded as a non-profit, tax-exempt organization of more than 400 member companies who collaboratively develop open specifications. Its scope of activities is in telecommunications and industrial computing applications. The companies involved have a long history of developing leading edge products for these industries. One of the supporting members of the PICMG® committee is Kontron.

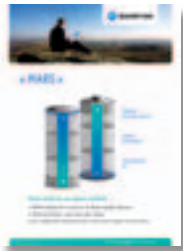
**COM Express™** is the name of the latest PICMG® standard – officially adopted in 2005 – for Computer-on-Modules (COM). COM Express™ modules are often sold as brands such as ETXexpress® from Kontron. The form factors explained inside this folder are all based on COM Express™ concepts, in which the elements playing a decisive role are mounting dimensions and electrical connectors.

## FACE TO FACE WITH CUSTOMERS NEEDS

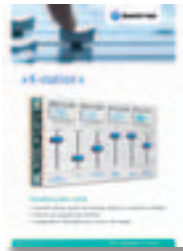
Benefit from a wide range of Kontron services and value-adds!

Mail us at:  
[sales@kontron.com](mailto:sales@kontron.com)

Or visit our literature library at  
[www.kontron.com](http://www.kontron.com)



**MARS**  
Mobile Application Platform for Rechargeable Systems



**K-station**  
Powerful software toolkit and developer library for Computer-on-Modules



**Boards & More**  
Custom Carrier Board Services – outsourcing made easy

## CORPORATE OFFICES

### Europe, Middle East & Africa

Oskar-von-Miller-Str. 1  
85386 Eching/Munich  
Germany

Tel.: +49 8165 77777  
Fax: +49 8165 77385

[info@kontron.com](mailto:info@kontron.com)

### North America

14118 Stowe Drive  
Poway, CA 92064-7147  
USA

Tel.: +1 888 294 4558  
Fax: +1 858 677 0898

[info@us.kontron.com](mailto:info@us.kontron.com)

### Asia Pacific

17 Building, Block #1, ABP.  
188 Southern West 4th Ring Road  
Beijing 100070, P.R.China

Tel.: + 86 10 63751188  
Fax: + 86 10 83682438

[info@kontron.cn](mailto:info@kontron.cn)

