



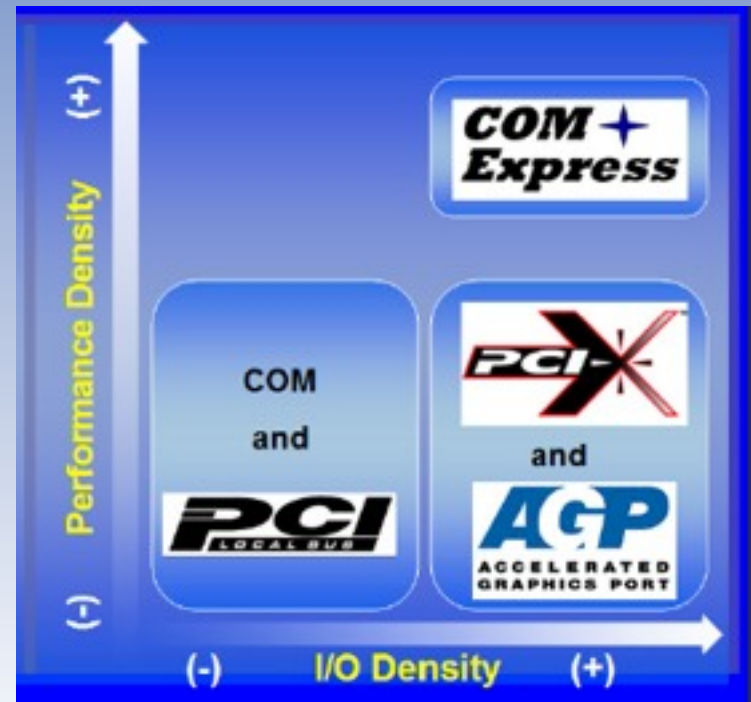
# Introduction to COM Express®

## An Overview of the Standard's Beginnings & Beyond

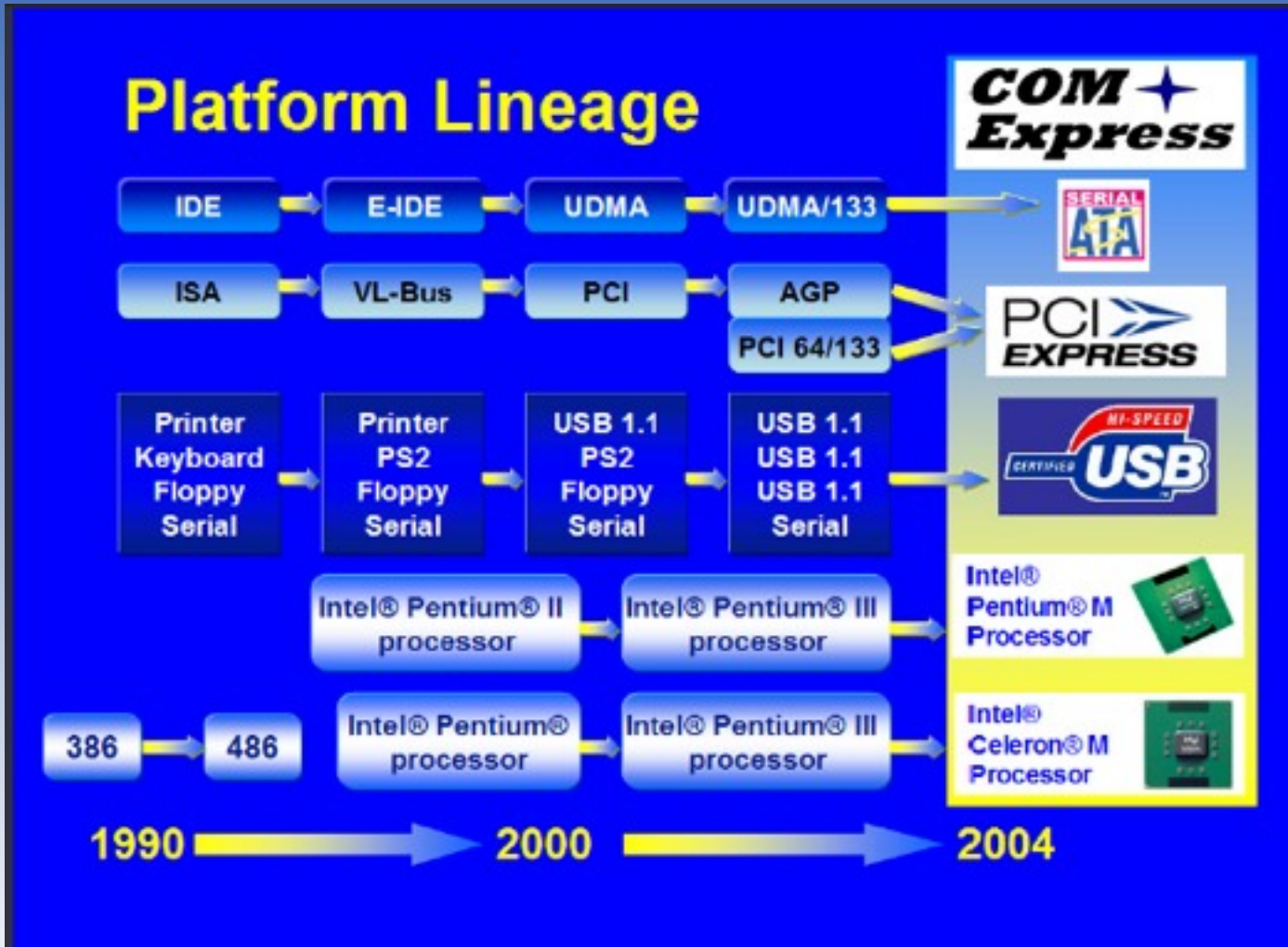


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October 2011

- 2003: Intel, Kontron, PFU & RadiSys recognized a growing ECT need:
  - Increased performance & I/O bandwidth
  - Migration path
  - Flexibility
  - Compact
  - Low Profile



# From Legacy to Next-Generation



- Multiple Processor Cores
- Chip integration
- Feature consolidation
- SOCs
- Faster SATA
- Faster PCI Express
- PCI Express lane configurations
- HDMI
- DisplayPort
- New VESA standards
- ... And More to come

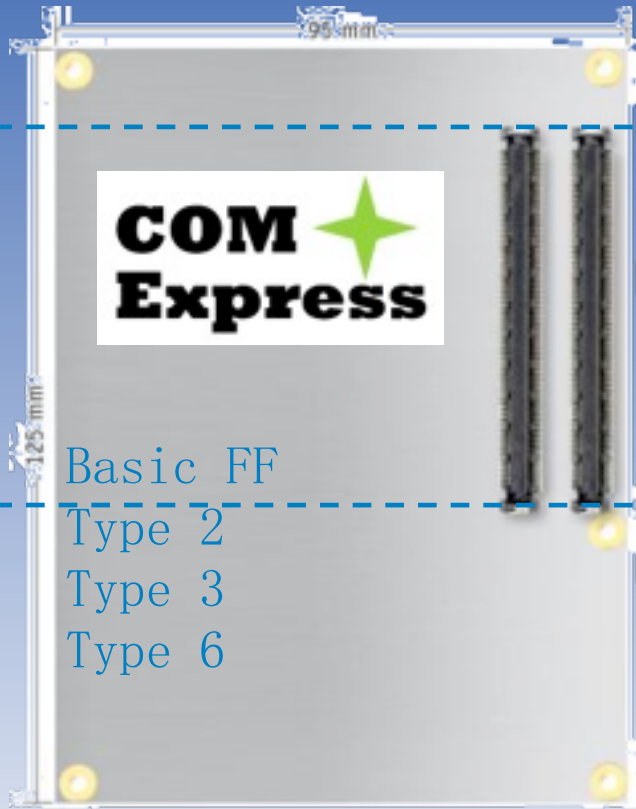
Source: [http://www.picmg.org/pdf/COM\\_Express\\_tutorial.pdf](http://www.picmg.org/pdf/COM_Express_tutorial.pdf)

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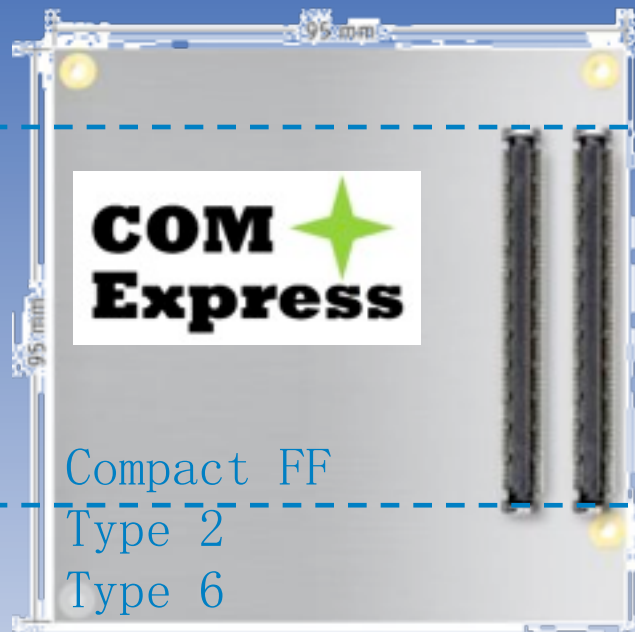


# COM Express® Form Factors



Basic FF  
Type 2  
Type 3  
Type 6

COM Express® Basic  
ETXexpress®



Compact FF  
Type 2  
Type 6

COM Express® Compact  
microETXexpress®

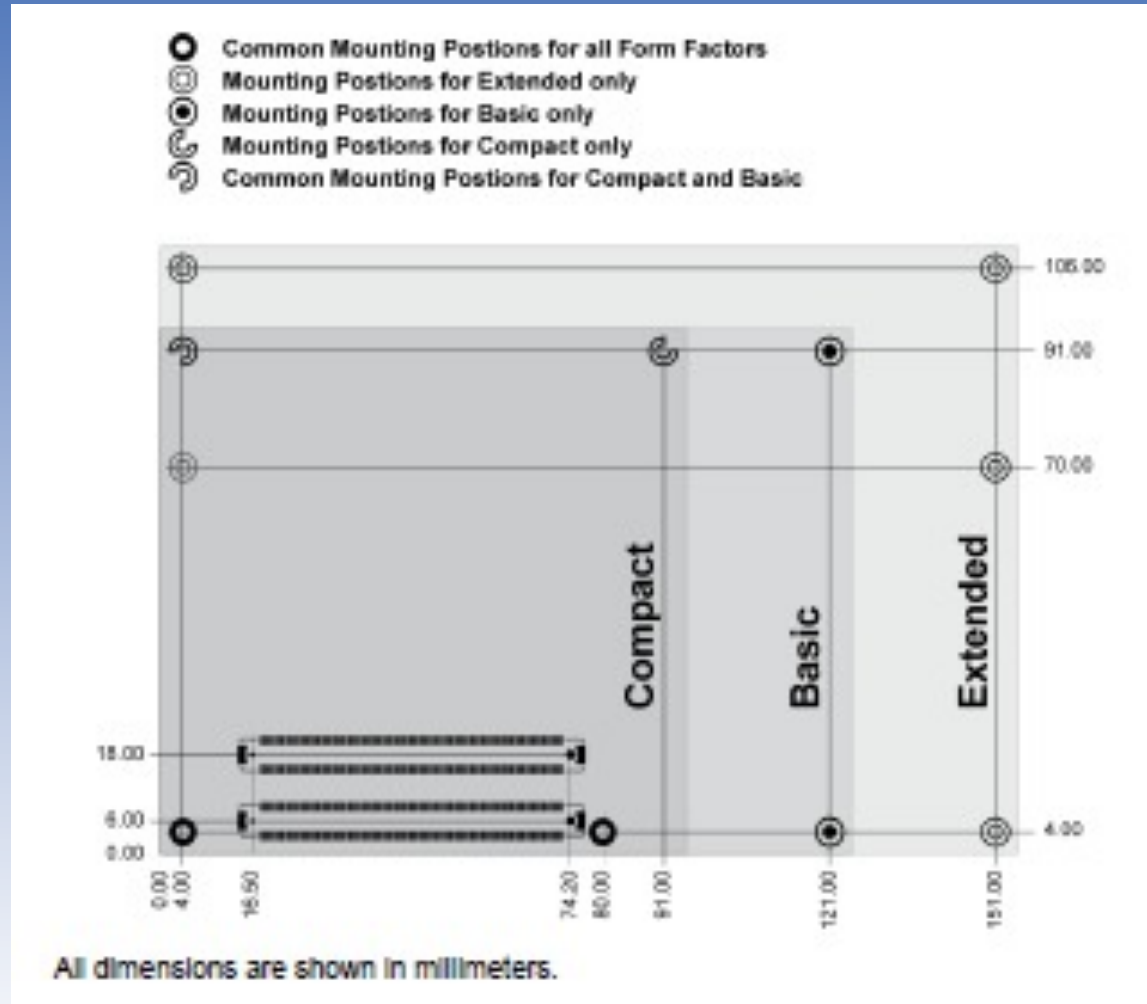


Mini FF  
Type 1  
Type 10

COM Express® Mini  
nanoETXexpress

The standard also includes an Extended Form Factor (155 x 110 mm).  
The COM Express connectors remain in the same position.

# COM Express® Mechanical Consistency





# COM Express Pin-Out Types







	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 10
<b>Connectors</b>	Single	Dual	Dual	Dual	Dual	Dual	Single
<b>USB ports</b>	Up to 8	Up to 8	Up to 8	Up to 8	Up to 8	Up to 8 w/ up to 4 SuperSpeed USB 3.0	Up to 8
<b>Serial ATA ports</b>	Up to 4	Up to 4	Up to 4	Up to 4	Up to 4	Up to 4	Up to 2
<b>IDE</b>	--	1	--	1	--	--	--
<b>PCI</b>	--	32-bit	32-bit	--	--	--	--
<b>PCI-E lanes</b>	Up to 6	Up to 22	Up to 22	Up to 32	Up to 32	Up to 24	Up to 4
<b>PEG/SDVO</b>	--	1/2	1/2	½	½	1/--	--/1
<b>ExpressCards</b>	Up to 2	Up to 2	Up to 2	Up to 2	Up to 2		Up to 2
<b>Display Support</b>	VGA, LVDS	VGA, LVDS, PEG/SDVO	VGA, LVDS, PEG/SDVO	VGA, LVDS, PEG/SDVO	VGA, LVDS, PEG/SDVO	VGA, LVDS, PEG, 3x DDI	1x DDI
<b>Audio</b>	AC '97 / HDA	AC '97 / HDA	AC '97 / HDA	AC '97 / HDA	AC '97 / HDA	AC '97 / HDA	AC '97 / HDA
<b>LAN</b>	1	1	3	1	3	1	1
<b>Max Power over COM E</b>	68W	137W	137W	137W	137W	137W	68W

Source: PICMG COM Express Specification

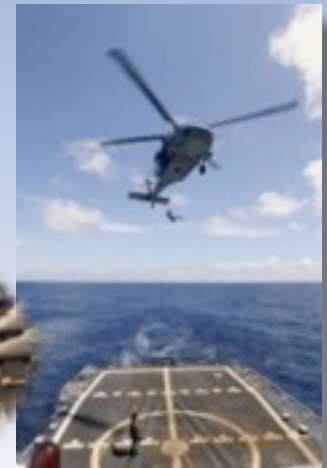
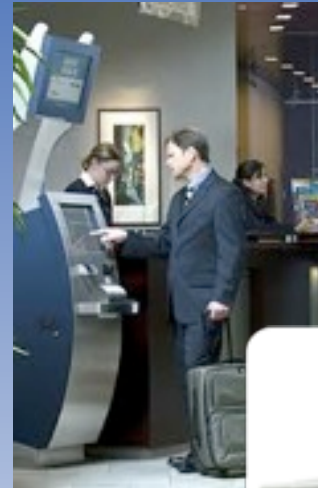


# COM Express® Portfolio Diversity

(The Kontron Perspective)

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	???
<b>Extended</b>	--	--	--	--	--	--	--	--
<b>Basic</b>	--	ETXe-PM ETXe-CD ETXe-MC ETXe-PC ETXe-PC-XT ETXe-AL	ETXe- WPM	--	--	ETXe-AL ETXe-SC  	--	
<b>Compact</b>	--	mETXe-PM mETXe-SP mETXe-XL mETXe-DC mETXe-PC mETXe-DV	--	--	--	mETXe-OH  	--	
<b>Mini</b>	nETXe-SP	--	--	--	--	--	nETXe-TT  	

# COM Express® Everywhere



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October 2011

Thank You!

Resources:

[www.picmg.org](http://www.picmg.org)

[www.kontron.com](http://www.kontron.com)

