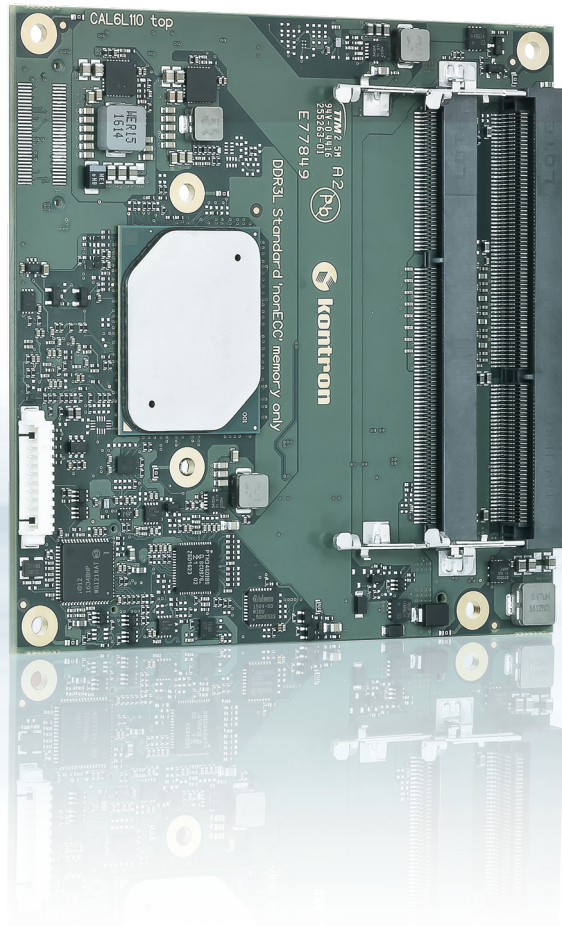


# COMe-cAL6 (E2)

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## COM Express® Compact Type 6 with Intel Atom® E3900 Series, Pentium® and Celeron® Processors

- ▶ Low-power - performance/watt optimized form factor solution
- ▶ Up to 8 GByte DDR3L 1600/1866 Memory (2x SODIMM socket)
- ▶ 4x USB 3.0/2.0, 4x USB 2.0, 2x SATA, eMMC Flash
- ▶ Industrial grade temperature
- ▶ Support of Kontron's Embedded Security Solution - APPROTECT (optional)

POSSIBILITIES START HERE

## ▶ TECHNICAL INFORMATION

<b>COMPLIANCE</b>	COM Express® compact, Pin-out Type 6																
<b>DIMENSIONS</b>	95 x 95 mm																
<b>CPU</b>	Intel Atom® E3900E Series, Pentium® and Celeron® Processor For details see table (CPU variants) given below																
<b>CHIPSET</b>	-																
<b>MAIN MEMORY</b>	2x SODIMM for DDR3L-1866 (non ECC) up to 8 GByte																
<b>GRAPHICS CONTROLLER</b>	Intel HD Gfx Gen9: 1x LVDS/eDP (3840 x 2160 @ 60 Hz) 2x DP (++) on DDI1/DDI2 up to 4K																
<b>ETHERNET CONTROLLER</b>	Intel® I210IT/I210AT (I211AT)																
<b>ETHERNET</b>	10/100/1000 MBit Ethernet																
<b>STORAGE</b>	2x SATA 6Gb/s, SDIO Interface (shared with GPIO)																
<b>FLASH ONBOARD</b>	32 GByte eMMC SLC on request: - up to 64 GByte eMMC SLC - up to 128 GByte eMMC MLC																
<b>PCI EXPRESS®</b>	<table border="1"> <thead> <tr> <th></th> <th>LAN</th> <th>PCIe switch</th> <th>PCIe config</th> </tr> </thead> <tbody> <tr> <td>default</td> <td>yes</td> <td>no</td> <td>3x PCIe x1</td> </tr> <tr> <td>on request</td> <td>yes</td> <td>yes</td> <td>5x PCIe x1 or 1x PCIe x2 + 3x PCIe x1</td> </tr> <tr> <td>on request</td> <td>no</td> <td>no</td> <td>2x PCIe x2 or 4x PCIe x1</td> </tr> </tbody> </table>		LAN	PCIe switch	PCIe config	default	yes	no	3x PCIe x1	on request	yes	yes	5x PCIe x1 or 1x PCIe x2 + 3x PCIe x1	on request	no	no	2x PCIe x2 or 4x PCIe x1
	LAN	PCIe switch	PCIe config														
default	yes	no	3x PCIe x1														
on request	yes	yes	5x PCIe x1 or 1x PCIe x2 + 3x PCIe x1														
on request	no	no	2x PCIe x2 or 4x PCIe x1														
<b>DISPLAY</b>	DDI 1/2: DP++, LVDS: Dual Channel up to 48-bit or eDP on request)																
<b>USB</b>	4x USB 3.0/2.0, 4x USB 2.0 (3x USB 2.0 w Security Chip)																
<b>SERIAL</b>	2x serial interface (RX/TX only)																
<b>AUDIO</b>	Intel® High Definition Audio																
<b>COMMON FEATURES</b>	SPI, LPC, SMB, Fast I <sup>2</sup> C, Staged Watchdog, RTC																
<b>BIOS</b>	AMI Aptio V																
<b>HUMIDITY</b>	93 % relative Humidity at 40 °C, non-condensing (according to IEC 60068-2-78)																
<b>FEATURES ON REQUEST</b>	PCIe configurations w/ PCI hub and w/o LAN chip Security Chip (Support of Kontron APPROTECT) eMMC Flash configuration eDP instead of LVDS General Purpose SPI instead of Boot SPI USB client																
<b>POWER MANAGEMENT</b>	ACPI 5.0																
<b>POWER SUPPLY</b>	8.5 V – 20 V Wide Range, Single Supply Power																
<b>SPECIAL FEATURES</b>	POSCAP capacitors, Trusted Platform Module TPM 2.0, microSD card socket 4k Resolutions, GPIO/SDIO Switch, Industrial grade temperature																
<b>OPERATING SYSTEM</b>	Windows® 10, Enterprise, Windows 10 IoT, Linux, VxWorks 7.x																
<b>TEMPERATURE</b>	COMe-cAL6 - commercial temperature: 0 °C to +60 °C operating, -30 °C to +85 °C non-operating COMe-cAL6 E2 - industrial temperature: -40 °C to +85 °C operating, -40 °C to +85 °C non-operating																

## CPU VARIANTS

BRAND	PROCESSOR NUMBER	TDP	CORES	THREADS	CACHE	BASE FREQ	MAX TURBO FREQ	GRAPHICS GEN 11	ECC	USE CONDITION
Celeron®	N3350E	6 W	2	2	2 MByte	1.1 GHz	2.4 GHz	12	no	PC Client
Pentium®	N4200E	6 W	4	4	2 MByte	1.1 GHz	2.5 GHz	18	no	PC Client
Intel Atom®	x5-E3930	6.5 W	2	2	2 MByte	1.3 GHz	1.8 GHz	12	yes	Embedded
Intel Atom®	x5-E3940	9.5 W	4	4	2 MByte	1.6 GHz	1.8 GHz	12	yes	Embedded
Intel Atom®	x7-E3950	12 W	4	4	2 MByte	1.6 GHz	2.0 GHz	18	yes	Embedded

\* The COMe-cAL6 doesn't support ECC memory

## BLOCK DIAGRAM

