**The C60xx series of advanced, compact and flexible-to-install IPCs, which now includes the new fanless C6025 Intel® Core™ i device (center), is available with all three new generations of Intel® processors.**

New processor generations augment the extensive portfolio of Industrial PCs from Beckhoff

# Exploiting new advances in IT to provide more granular scalability in multi-core CPU performance

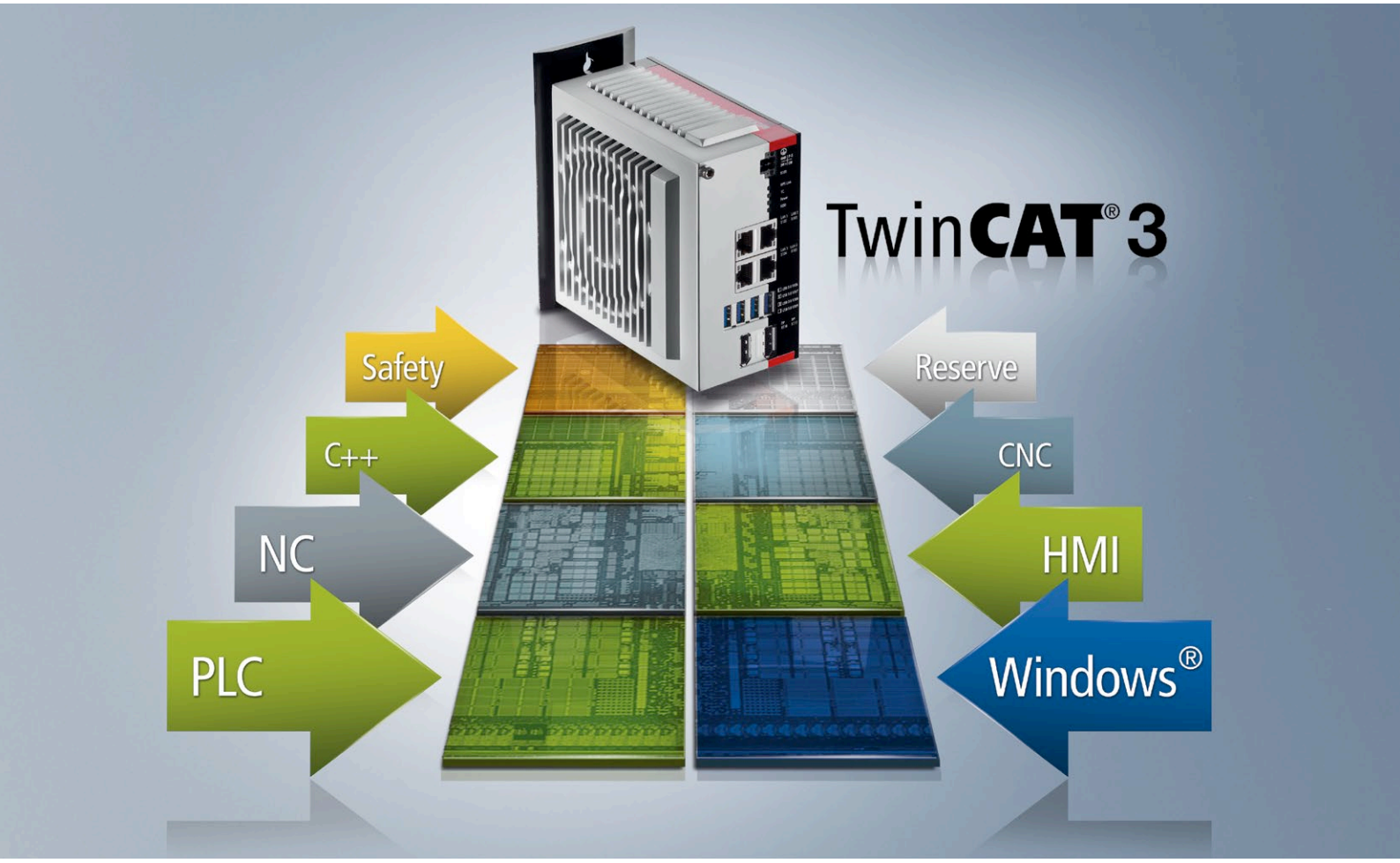
More than 30 years ago, Beckhoff decided to bank on the innovation potential offered by the PC and the IT world. The enduring success of the company's PC-based control technology is testament to just how right that decision was. With three new generations of Intel® processors, users can continue to benefit from decades of experience in building industry-driven, technologically sophisticated Industrial PCs with long-term availability as the company unveils new devices designed to meet the growing trend toward parallel processing on multiple CPU cores.

The success of PC-based control technology from Beckhoff is not just down to outstanding performance, it is also built on the company's expertise at turning IT sector innovations into industry-ready products. This has resulted in Industrial PCs that remain available, essentially unchanged, for long periods of time, while maintaining form-factor and interface compatibility, even as the technology continues to evolve. At the same time, meticulous testing and qualification of new processor generations, combined with custom hardware and software optimizations, ensures that IPCs make the most of their performance potential yet still provide maximum reliability.

**Enhancing CPU performance with parallelization**

For decades, gains in PC performance have been driven by rising clock speeds. However, as current chip technology approaches limits imposed by physics, the way forward now is through multi-core technology, which puts multiple cores in a CPU that operate in parallel, rather than running a single core at a higher clock rate. Beckhoff was quick to embrace multi-core technology, fitting this type of CPU (including extremely high-performance many-core Intel® Xeon® processors) to a variety of its Industrial PCs. These include the C6670 industrial server, unveiled in 2014 and currently available with up to 40 cores, and the CX2000 series of Embedded PCs from 2016, which pack as many as 12 cores into a DIN rail-mounted device.

Exploiting these parallel cores effectively involves more than just choosing the right chipset and adapting the hardware accordingly. The big performance potential lies in tuning the software that make optimum use of the multi-core technology. TwinCAT 3 users, for instance, have benefited from the ability of the automation software to support multiple cores for several years now.




**With the specially tailored TwinCAT 3 software and the increased granular scalability of its IPC products, Beckhoff makes the most of advanced multi-core technology. Shown here is the compact C6030 device with now up to eight processor cores.**

**The new CX52xx series of Embedded PCs (center) brings the latest generation of Intel Atom® processors to the portfolio.**

**IPCs powered by three new processor generations from Intel®**

Intel® recently rolled out three new processor generations suitable for use in Industrial PCs:

– Intel Atom® X-E39xx processor series with up to four cores
– 8th Gen Intel® Core™ i U processor series with up to four cores
– 9th Gen Intel® Core™ i processor series with up to eight cores

Typically for new PC technology, all three generations offer the same essential advantage: more performance at the old price point. Specifically, Intel® has optimized their chip architecture and design to deliver a 10 % to 20 % performance gain over their predecessors, while at the same time adding numerous new features. The Intel® Core™ i U processors mark a significant step forward in that they consume much less power while still offering the same capabilities as other Core® i processors, making them an excellent choice for IPCs required to handle complex control applications yet meet green IT constraints. The key benefit is, though, that they are ideal for building new models of extremely compact, fanless IPCs.

Beckhoff will initially offer the following Industrial PCs with the new processor generations:

– Intel Atom® X-E39xx processors: CX52xx Embedded PCs, C601x and C69x5 control cabinet PCs, CP670x, CP27xx and CP37xx panel PCs
– 8th Gen Intel® Core™ i U processors: the new C6025 ultra-compact fanless Industrial PC with Intel® Core™ i performance
– 9th Gen Intel® Core™ i processors: C603x ultra-compact Industrial PCs, C6920 and C6930 control cabinet PCs, and ATX-based C66x0 and 19-inch rack-mount C52x0 PCs

**Five IPC performance classes for even more granular scalability**

These new devices further expand the already broad range of Industrial PCs from Beckhoff to offer users a total of five performance classes from which they can choose the optimum solution for their individual application requirements. Where computing power is less crucial, the ARM-based Embedded and Panel PCs are ideal. More powerful yet exceptionally energy-efficient devices with Intel Atom® CPUs offer the next step up. Filling the performance gap between these systems and those equipped with powerful Intel® Core™ i processors toward the upper end of the range is the new low-power, ultra-compact C6025 Industrial PC with an Intel® Core™ i U CPU. Next up in terms of speed comes a wide selection of Intel® Core™ i devices now fitted with the new 9th Gen processors. And at the top end are Intel® Xeon®-based systems such as the C6670 industrial server and the CX20x2 series of Embedded PCs, designed for applications that need maximum performance.

The new C6025 equipped with Intel® Core™ i U processor best exemplifies the advantages to be gained by making smart use of IT advances to serve industry's needs: Until now, only devices with mid-range performance were available to suit the growing trend toward compact, fanless Industrial PCs. With the C65xx series with Intel® Core™ i CPUs, Beckhoff has been offering a solid option for such purposes, but its elaborate fin-based cooling system means that it has a relatively large form factor. Here, the ultra-compact C6025 Industrial PC offers an exceptionally compact alternative that combines a power-efficient Intel® Core™ i U processor with an advanced, fully passive cooling design capable of dissipating the heat generated by the high CPU performance.

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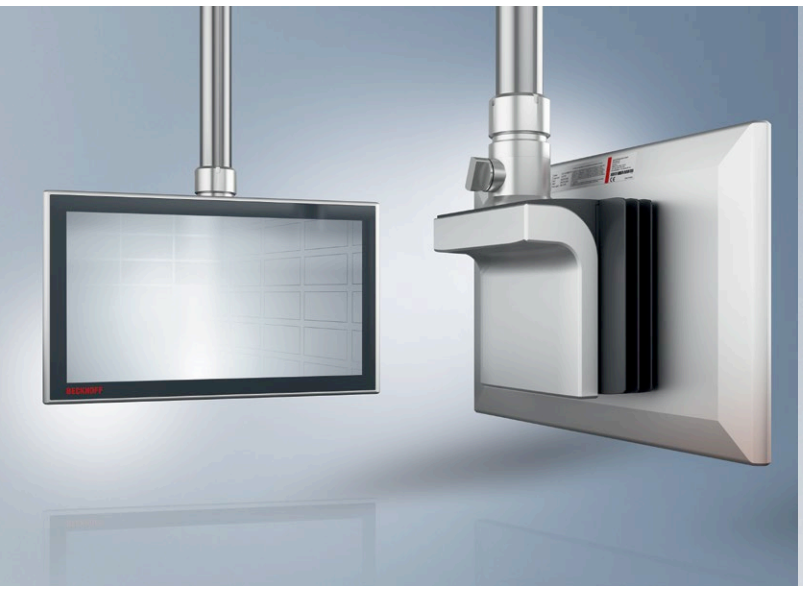
**The range of multi-touch Panel PCs such as the CP37xx depicted here has also been expanded to include power-efficient models based on the Intel Atom® X-E39xx processor series.**



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