

# Take up takes off

**T**he market for telecom systems and equipment based on the Advanced Telecom Computing Architecture (ATCA) standard has become well established, considerably faster than originally anticipated. Analysts maintain that, in less than four years since the standard was published, 40% of network equipment providers (NEPs) are now delivering ATCA based systems.

"We think the take up of ATCA today is about one year ahead of where we initially expected it to be by this time," said Eelco van der Wal, chairman of the European arm of PICMG (PCI Industrial Computer Manufacturers Group), which developed the standard.

The highly competitive nature of the telecommunications market has led to a major shift away from proprietary systems. "We are seeing far more 'buy' decisions replacing the 'make' decisions of the past decade," van der Wal confirmed. "And this major shift coincides with the introduction of ATCA."

The constant search for new revenue generating telecom services that can be added easily, cheaply and swiftly to existing network infrastructure has created demand for open COTS platforms that can be adapted to changing requirements. The ability to deploy common, standard platforms across multiple network elements brings further efficiencies and gives equipment and service providers more opportunity to concentrate on differentiation, especially as new markets, such as 3G, IPTV and converging fixed/mobile networks emerge.

"ATCA is a well defined market for big systems and it is not going away any time soon," he confirmed. But van der Wal added that it is a

*New markets demanding high availability systems with minimum downtime are a 'steal' for the ATCA and MicroTCA sector.*

*By Louise Joselyn.*

specialist market accessible only to a limited number of companies that can meet the dedicated requirements of the telecom equipment and service providers. "Not everyone is geared up to delivering tens of thousands of systems, providing high levels of service and guaranteeing long term support," he said. Consolidation, largely at the Tier One level, amongst ATCA equipment and system suppliers is regarded as a good thing, demonstrating that the market has settled into a more mature, established phase, which is set for steady growth.

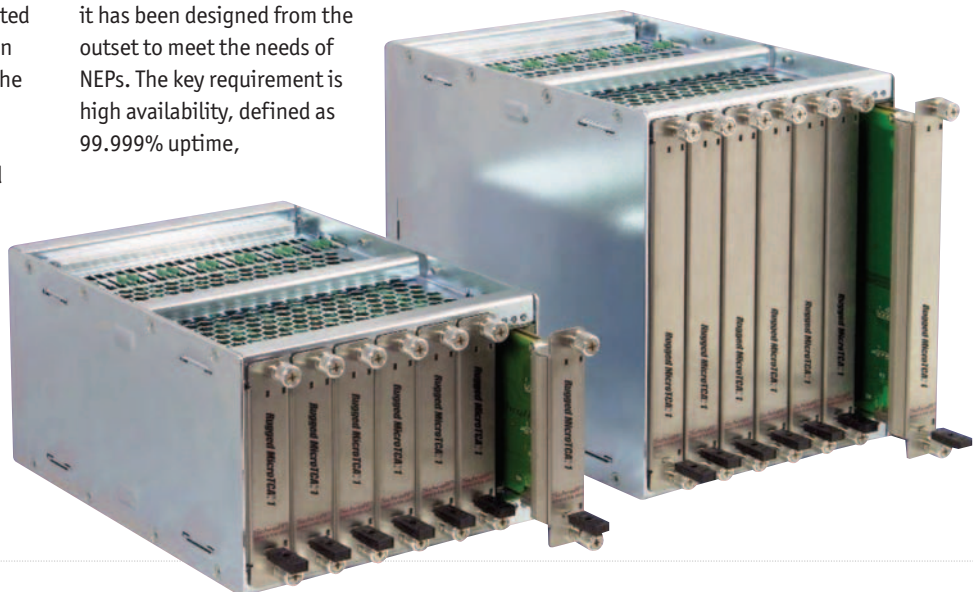
The success of the ATCA platform is not merely a factor of timing, however. Clearly, it has been designed from the outset to meet the needs of NEPs. The key requirement is high availability, defined as 99.999% uptime,

delivered through a focus on high reliability and the ability to maintain, repair and upgrade the systems without taking them out of service. A combination of built in redundancy and a board 'hot swap' capability achieve this target.

The adoption of a common platform is simultaneously spurring new vendors to develop add on features and modules for extending existing platforms. "There are opportunities especially for software based solutions," van der Wal noted. Hardware extensions are possible through the Advanced Mezzanine Card (AMC) standard. Both contribute to the growing ecosystem of ATCA vendors.

## Meeting emerging applications

The development of a separate backplane and chassis for the AMC daughter cards spawned the MicroTCA standard, completed just two years ago. Its inherited high reliability, system management and hot swap capabilities, make MicroTCA ideal for a host of new emerging applications, according to van der Wal. "These high end features are a first in such a compact form factor," he said.



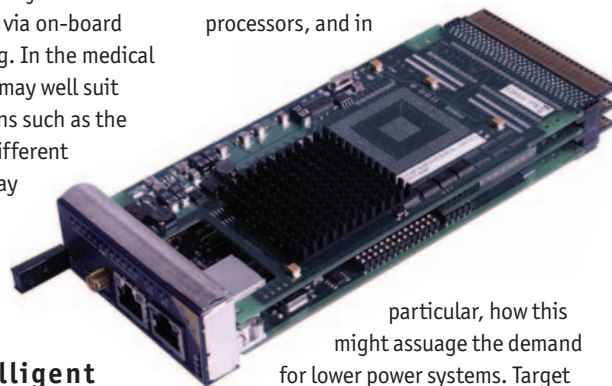
Opportunities abound in any heavy duty, high data-rate application requiring the wide deployment of remote units that need to be monitored, controlled, maintained and even repaired from a central control, where downtime can cause serious disruption, and a mobile maintenance crew is impractical. "Redundancy can be built in for autonomous self-repair," van der Wal suggested. "With appropriate sensors, a central control facility can check temperature, power usage and vibration of remote units. Operators can run remote diagnostics, create back-ups, and reconfigure systems. No longer is it necessary to send out a technician to monitor every remote unit to make checks or install updates."

important market, with vehicle and/or freight tracking, taking data from RFID systems, GPS or navigation systems and passing back instructions via on-board systems or SMS messaging. In the medical sector, MicroTCA systems may well suit data-intensive applications such as the analysis of images from different types of scanning and x-ray equipment, increasingly used concurrently to improve diagnosis and treatment monitoring.

**Rugged and intelligent**

For the future, van der Wal indicated that a ruggedised version of MicroTCA for military markets is under consideration. An

impacting the MicroTCA (and ATCA) markets, according to van der Wal, is the shift to multicore processors, and in



particular, how this might assuage the demand for lower power systems. Target

ATCA and MicroTCA applications, are naturally processor intensive. Not only do the increasing number of processors involved draw huge amounts of power, but the heat they generate requires more power to run the cooling systems. Any means of reducing power requirements is going to be much sought after. Devices that generate less heat require less cooling. So far, the extensive use of multicore devices (replacing discrete devices) has enabled an increase of processing performance for the same power budget. "We need new ways of saving energy," van der Wal stated. He cites the telecoms and especially the data server markets as the prime candidates.

At the other extreme, Van der Wal admits that MicroTCA is overspecified for some markets. "In most cases, there is no need for existing CompactPCI applications to consider changing," he said. However, PICMG may eventually consider a 'stripped down' version of MicroTCA. "Not everyone needs all the features and complexity. It might be possible to make features such as self configuration on power up and hot swapping optional, rather than standard. This could bring down the cost and extend the application domain for existing suppliers and encourage new market entrants," he said.

However, the key factors prompting the take up of MicroTCA, van der Wal summarised, are the need for maximum uptime, the ability to hot swap boards, the flexibility and scalability of serial buses and system management. ■

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The standard was initially envisaged for applications at the edge of the telecoms network sector, where ATCA platforms are over specified. There are already around 100 suppliers of MicroTCA boards and system components: covering chassis, power supplies, connectors, back panels, racks, fans and carrier hubs. Telecom applications for MicroTCA are building, especially for systems installed away from the main network infrastructure, closer to the customer, such as for cell based services.

**Applications abound**

One of the first major applications of MicroTCA outside the telecoms market is in the financial services sector, where a large number of remote transaction systems are connected to a central processing centre. Other applications are expected in areas such as traffic control, security services, industrial and plant control, emergency services, vehicle telemetry systems and stolen vehicle tracking systems.

Fleet maintenance could also be an



obvious application would be for a system to receive, monitor and process radio and helmet-mounted camera transmissions from field based units, providing an exchange of intelligence information using smart software to interpret the data. "A tougher MicroTCA system would also suit truck, train or aircraft mounted applications," he said.

One of the most important trends