

News Release

New Venture Research announces the release of a special market research report titled, ‘The Merchant Embedded Computing Market – 2012 Edition’

Nothing could be more relevant to the Merchant Embedded Computing (MEC) business today than the saying, “With change comes opportunity.” The recent recession has impacted application segments that drive MEC purchases in both positive and negative ways. Many MEC applications are fragmenting into areas with highly focused product requirements, consisting of many options—the type of business model that competing EMS subcontractors who “design once; build many” are simply not good at for this market. Another trend is the escalating Asian ODM manufacturing model, which threatens to capture an increasing proportion of select parts of this market. Moreover, there is the changing political climate to bring manufacturing back in-house (“insourcing”). Finally, next-generation high-integration silicon at 28 nm is bringing enormous capabilities to board-level systems that only a few years ago would have been possible only with a roomful of computers. Improvements include lower energy consumption and very high-speed serial bus interconnects, all within small form factors (SFF).

While “green” may be the new color with respect to energy consumption features, “red” was the color on many MEC suppliers’ financial sheets during 2009 and 2010. 2011 showed significant improvements in many application areas but the first half of 2012 is burdened by the situation in Europe and to a lesser degree a slowdown in China and both factors are clearly causing an industry and economic slowdown. Whereas the overall MEC market is slowly recovering from the trauma of the economic meltdown, the performance of various market segments, bus architectures, and companies is recovering at different rates and in different forms. Most economist don’t believe a “double-dip” recession in the United States will occur in 2012, but many agree on a sluggish economy that effects nearly all MEC industry sectors. For example, the auto industry clearly has recovered in the USA but is being slammed by the European sector. The table below forecasts the overall MEC revenue between 2011-2016.

	<u>2011</u>	<u>2016</u>	<u>CAGR</u>
MEC Rev. (\$M)	5,193	7,716	8.2%

MEC markets tend to have very specific computer requirements that differentiate them from other computing segments such as PCs and the general embedded electronics markets. These requirements may include operating in harsh environmental conditions of temperature, humidity, or



vibration, greater reliability and security, and specific real-time computing functionality. Hence, the market leaders, competitive forces, growth rates and sizes of the different application segments vary widely. In all cases, the merchant market for MEC products represents only a small portion of the total value of the electronics consumed by these markets which change substantially over time.

In the communications sector, the wireless segment is driven by smart phone traffic expansion and the network providers upgrading system to 4G. This sector performed much better than the wireline telecom sector. 3G and 4G services are providing profits for carriers going forward; however, the wireline and optical networks are gearing up for upgrades to support the ever-increasing traffic. The ROI for text messaging has proved to be phenomenal because most people now spend more time looking at their cell phones than talking into them, thereby increasing the need for more data services. People are not only looking at text messages but related websites (Facebook) and watching video as well. These factors are putting enormous demand on the network and carriers are moving to 4G as fast as possible.

The recent announcement of the new Intel "Romley" architecture, and some recovery in the economy have inspired increases in capital expense budgets. The Romley microprocessor was delayed by about 6-9 months and in May, HP, IBM and Dell all announced new servers and it is kicking off the server upgrade cycle in data centers.

Corporations are gearing up to upgrade their circa-2007 systems with the new energy-efficient systems that can replace 10 servers with one new multicore server and allow an energy payback in less than 18 months! Virtualization trends are now moving massive amounts of data in and out of systems, requiring interconnect speeds to grow from 1 Gbps today to 10 and 40 Gbps. This is good news for MEC communication suppliers.

The previous financial crisis significantly damaged the industrial automation market and also took its toll on industries such as semiconductor capital equipment, aerospace, and automotive, which use MEC systems to automate production testing and process control. Just as these segments are recovering in the USA, they got slammed with the European crisis.

The medical segment was also hit hard by the downturn, which made MEC-based purchases of large equipment much more difficult, especially with the buzz and confusion surrounding Obama's Healthcare plan which delayed capital investments. This, coupled with the changing political climate surrounding health care in the industrialized countries also stalled and slowed demand over the last few years.

Until recently, the ever healthy Mil/Aero segment has been impacted by the financial malaise and is facing declines in the USA defense department funding (larger than all the combined rest of the world's defense spending). That is likely to cause a restructuring, not seen since the end of the cold war. Counter to this the cut backs in personnel, all the above is creating opportunities for computerized battle ROVs and electronic-enabled soldiers.

Each special MEC bus architecture has a different rate of adoption depending on the needs of individual application segments. Key trend catchphrases for architectures are "power is up and down"; "green is the new color"; and "small is big." Older bus structures are giving way to newer



ones that offer smaller form factors, more serial buses and interconnects, and lower operating power. New 28- and 32-nm silicon architecture for microprocessors, graphics, DSPs, and high-integration I/O chips packs provide unprecedented processing power while greatly reducing power consumption. This is especially important today as many MEC systems operate 24x7 and the operating costs relative to energy consumption are playing a more important role in the total cost of ownership beyond initial price/cost. Moreover, high-integration silicon and serial buses enable smaller form factors than in past designs and are making many older, parallel bus structures, such as PCI, look like “clunkers.” Though technology transitions often move slowly into the architectures, this is clearly the new direction and is likely to accelerate.

Bus structures continue to proliferate around the major and long-established buses but the number of variances is past 100 at the time of this writing. Although this may seem like a bad thing and difficult to track, it is all part of the “customization” strategy that MEC suppliers are using to fulfill customer needs and fend off competing generic ODM manufacturers, who build in high volumes once a specific board design has been optimized. Fortunately or not, there have not been any major shifts in bus architectures on the near term horizon. Older stagnant buses seem to be dying off (PCI). Buses that constantly renew their features and stay current with the latest technology maintain their strong market positions (VMEbus). In addition, ATCA in communication and AMC could show some significant growth over the forecast period.

New Venture Research has released an in-depth study of the Merchant Embedded Computing Market – 2012 Edition which it has been following for nearly 20 years. Further details can be seen at: <http://www.newventureresearch.com/wp-content/uploads/2012/05/mec12bro.pdf>

