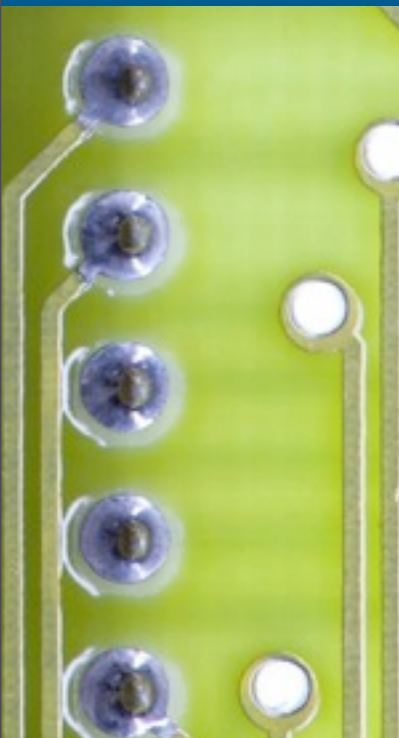


Embedded Hardware & Systems Practice

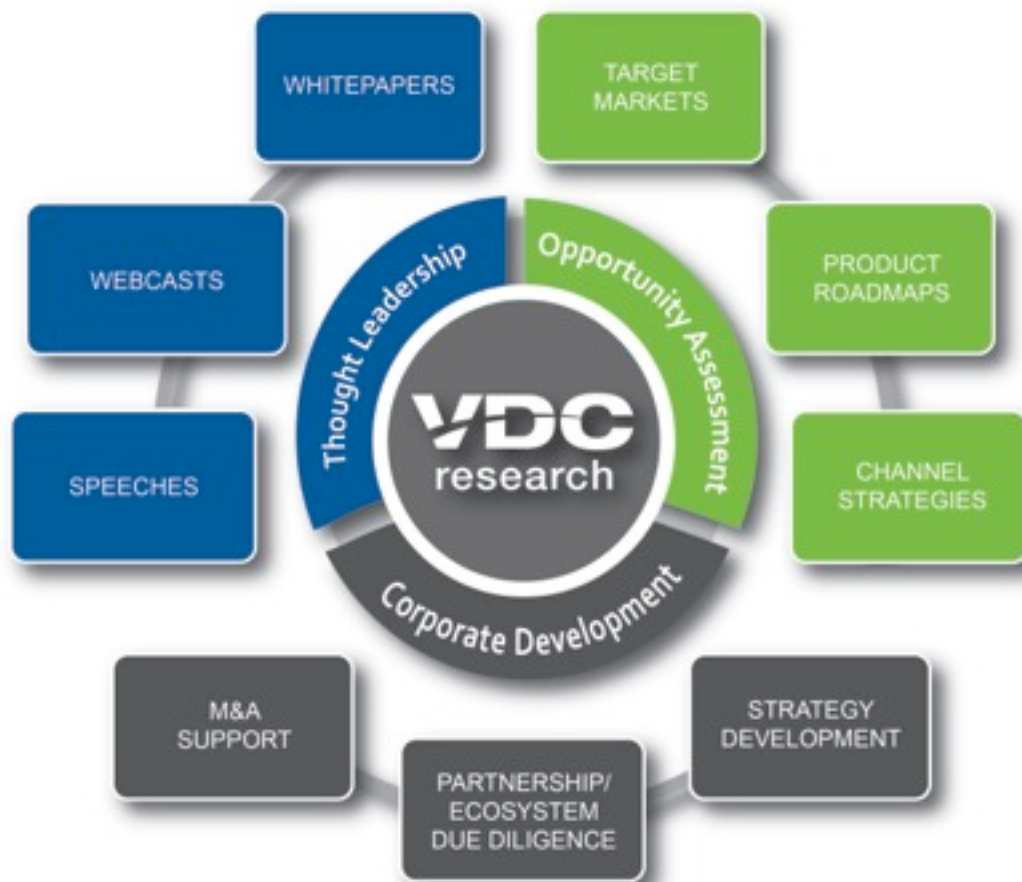
Jonathan Hastings – Analyst

VDC
research

November 2011



Advanced TCA/AMC Market Conditions: Issues, Trends, Forecasts, and Expectations

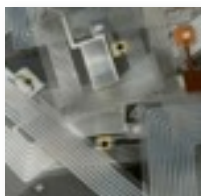


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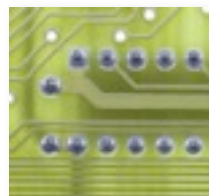
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AutoID & Transaction Automation

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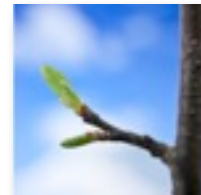
Industrial Automation & Control

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Emerging Technologies

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Research Methodology

VDC's research coverage and analysis examines a number of market segments along three primary dimensions

VDC's Research Coverage

- Processor platforms
- Board-level platforms
- Embedded Integrated Computer Systems
- Services

Requirements

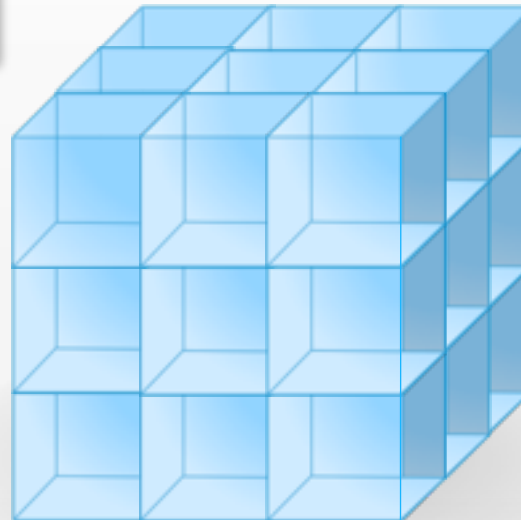
- Commercial
- Technical

Vertical Markets

- Communications/Networking
- Industrial Automation & Control
- Medical
- Military/Aerospace
- Transportation
- Niche Markets & Emerging Applications

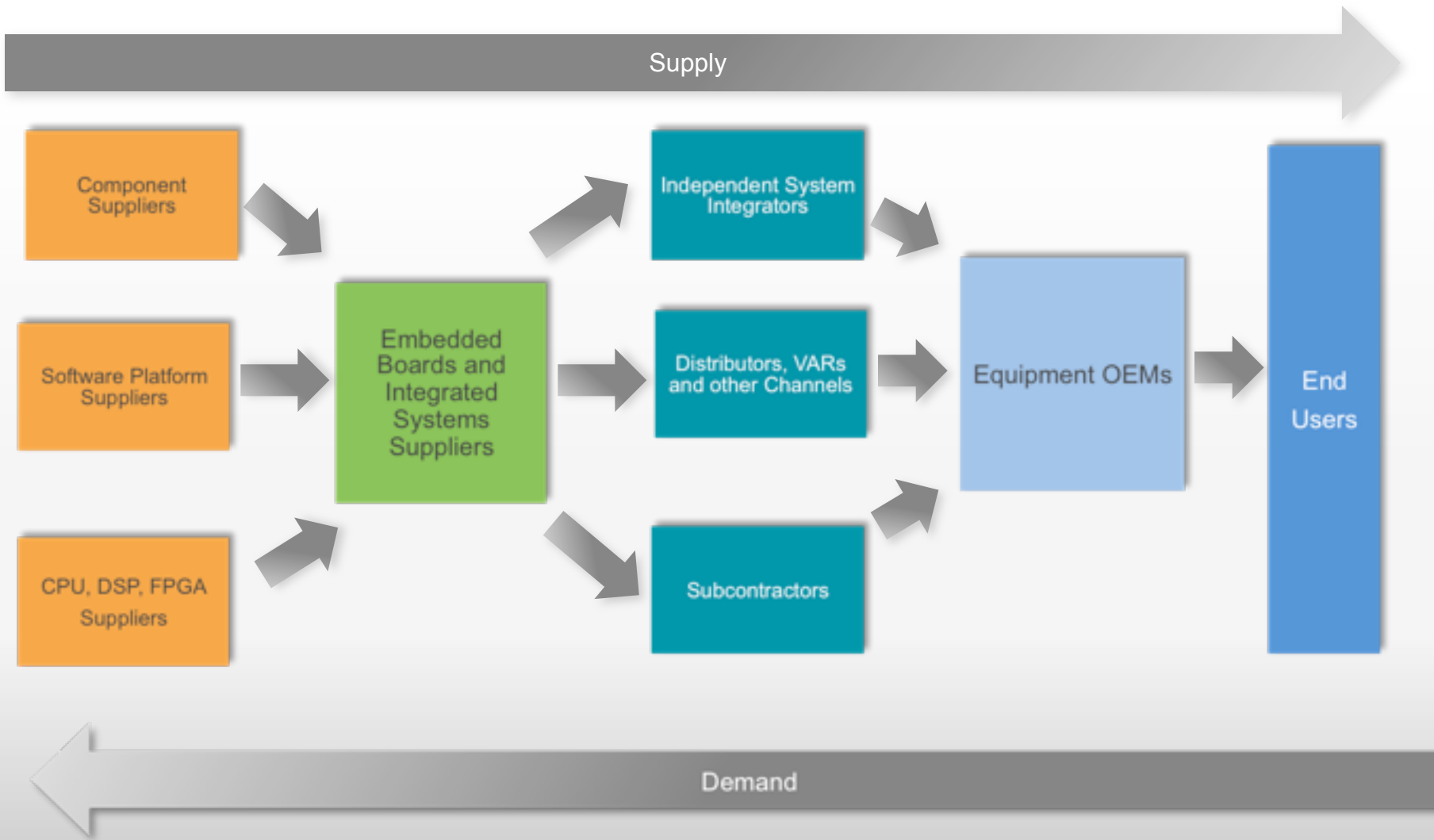
Worldwide Regions

- Americas
- EMEA
- Asia-Pacific



Market Overview: Embedded Technology Market Ecosystem

Demand for embedded technology is derived from multiple market segments, and will accelerate (or decline) at varying rates depending on multiple internal and external environmental factors



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ATCA CPU Blades

ATCA CPU Blades – Total Global Market Size and Forecast, 2010 - 2015

ATCA CPU Blades are predicted to grow at a compound annual growth rate (CAGR) of 15.8% over the forecast period

Total Global Market, ATCA CPU Blades, 2010–2015 (US\$ in millions)

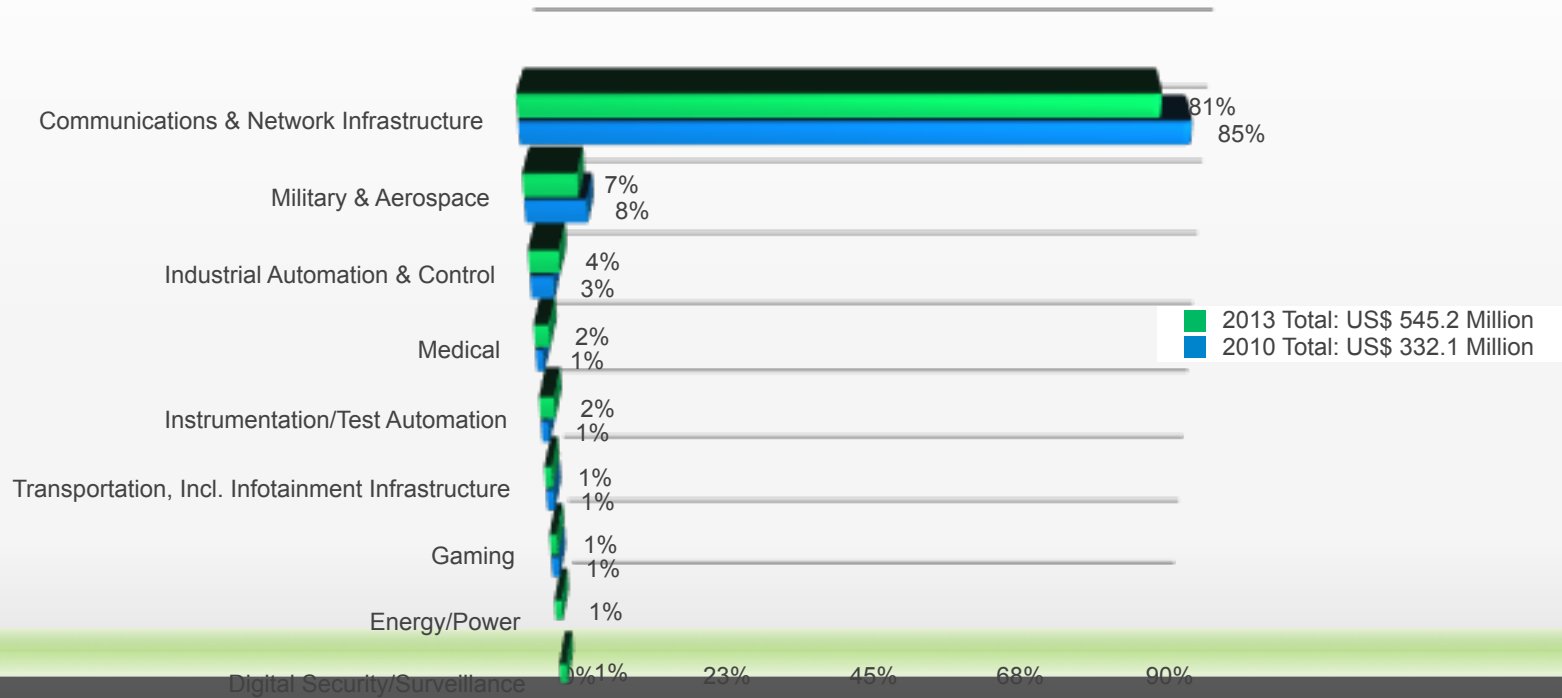


- ATCA CPU Blades are growing substantially over the forecast period.
- This architecture is finding clear acceptance in the communications and networking and military aerospace sectors.
- Customer demand for high-bandwidth services, differentiators like deep domain expertise, and upgradability are all factors playing into the growth of the market.

ATCA SBCs – Vertical Market Segmentation

Not surprisingly, the communications and networking vertical segment consumes the vast majority of ATCA-based SBCs

AMC CPU Cards, Vertical Markets, 2010 & 2013 (% of Dollar Volume Shipments)



- In 2010, approximately 85% of all ATCA SBCs were shipped to the Communications and Networking vertical market segments.
- As the total ATCA SBC global market size increases through 2013, the percentage of dollar volume shipments into other vertical segments will also increase.

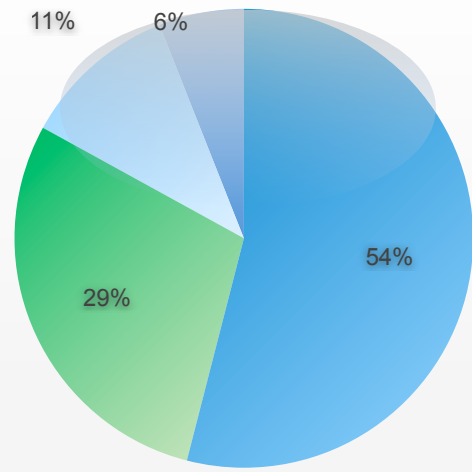
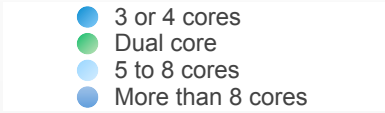
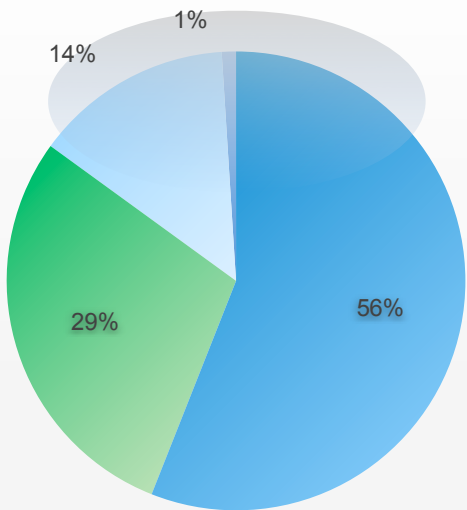
ATCA SBCs – Number of Cores Used

The number of cores used is rapidly increasing in ATCA

The number of cores used is rapidly increasing in ATCA

ATCA, Number of Cores, 2013 (% of Dollar Volume Shipments; 2013 Total: US\$ 332.1 Million)

Number of Cores, 2010 (% of Dollar Volume Shipments; 2010 Total: US\$ 332.1 Million)



- Multi-core processors are seen as increasingly necessary in ATCA architectures.
- Security is a key driver in the adoption of multi-core in ATCA platforms

ATCA SBCs – Market Share Ranking

RadiSys leads the ATCA market according to VDC's estimated market share, followed by Emerson and Kontron

ATCA CPU Blades, Leading Vendors by Market Share Position, 2010
2010 Total: US\$ 332.1 Million

Supplier Name	Ranking
RadiSys Corporation	1
Emerson Network Power	2
Kontron AG	3
Ampro Adlink Technology Inc	4
Diversified Technology	5
Continuous Computing *	6
Mercury Computer Systems	7

**Note: Continuous Computing was acquired by RadiSys Corporation in March 2011*

Source: All market share positions are VDC estimates based on several sources, including supplier financial data

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AMC CPU Cards

AMC CPU Cards – Total Global Market Size and Forecast

AMC CPU Cards are projected to experience the highest rate of growth among SBC technologies

Total Global Market, AMC CPU Cards, 2010–2015 (US\$ in millions)

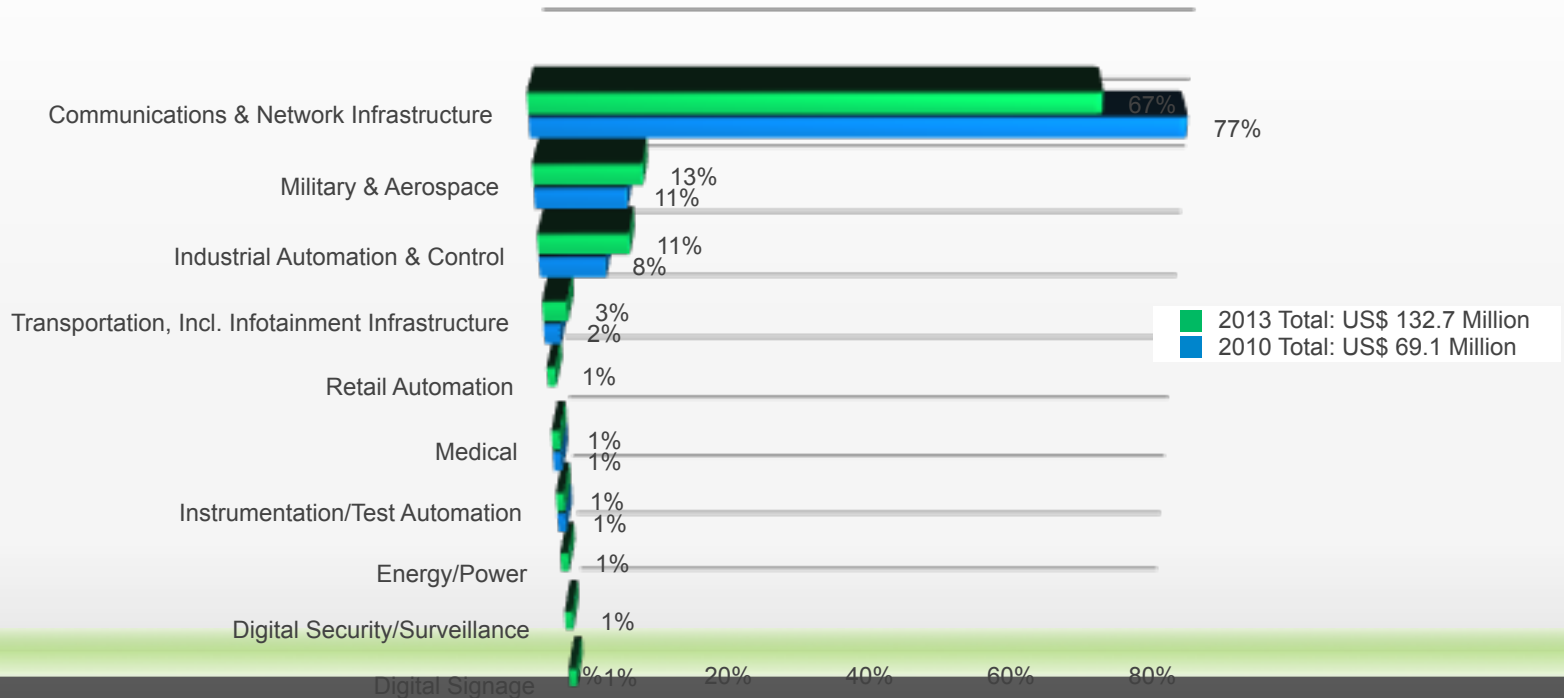


- According to VDC's supply-side research, AMC CPU cards are growing rapidly over the 2010-2015 forecast period with a CAGR of 21.9%.
- While growth was constrained in the 2009-2010 timeframe, VDC expects this market will accelerate in 2011 and beyond.
- New expansion into the Military/Aerospace and IAC markets will provide new applications for AMC technology.

AMC CPU Cards – Vertical Market Segmentation

Military/Aerospace and IAC offer significant growth opportunities for AMC CPU cards

AMC CPU Cards, Vertical Markets, 2010 & 2013 (% of Dollar Volume Shipments)



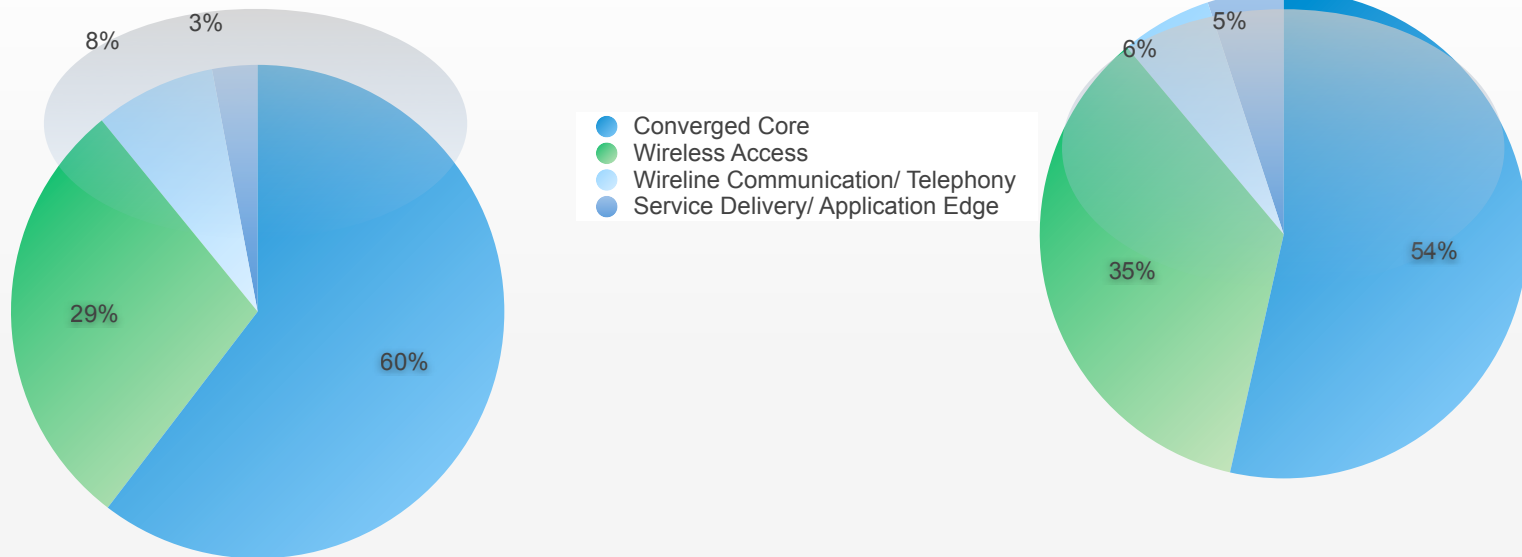
- The majority of the AMC CPU card market will continue to be in the communications and networking vertical segments.
- AMC CPU cards will have opportunities in the mil/aero segment in areas such as electronic intelligence, sonar, radar, and battlefield communications as well as Industrial Automation & Control.

AMC CPU Cards – Communications Market Sub-segments

The Communications market will increasingly rely upon wireless access

AMC CPU Cards, Communications Market Sub-Segments, 2013 (% of Dollar Volume Sh

Communications Market Sub-Segments, 2010 (% of Dollar Volume Shipments; 2010 Total:



- In 2010, the majority of AMC CPU cards were used in wireline communications.
- Wireless access is increasingly using AMC CPU cards.

AMC CPU Cards – Market Share

Emerson dominates the market AMC CPU card market.

AMC CPU Cards, Leading Vendors by Market Share Position, 2010
2010 Total: US\$ 69.1 Million

Supplier Name	Ranking
Emerson Network Power	1
Kontron AG	2
Extreme Engineering	3
Mercury Computer Systems	4
GE Intelligent Platforms	5

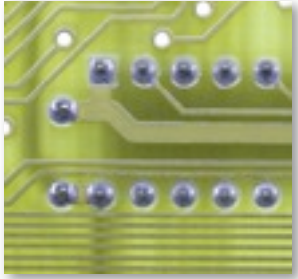
Source: All market share percentages are VDC estimates

Summary Conclusions & Observations

The SBC market is growing, particularly in ATCA CPU Blade and AMC CPU Card segments of the market.

- Challenges to the SBC market include constraints on military and defense budgets, the potential erosion of profit margins as the SBC market becomes more commoditized, and competition from active backplane motherboards and COMs.
- The global macroeconomic environment will continue to present uncertainty for the immediate future. Service providers like Verizon and AT&T have reduced their capital expenditures in Q3 2011, suggesting increased caution on the part of these companies.
- ATCA and AMC CPU cards are predicted to exhibit the greatest growth of all the SBC technology segments.
- The Communications & Networking infrastructure will remain the largest vertical market, with particular growth around wireless infrastructure and femtocell and picocell base stations.
- Military/Aerospace (depending on active defense related budget talks) and IAC are projected to present excellent opportunities for market penetration, as well.
- Edge-computing applications will be a strong area of interest for AMC CPU cards.

For more information please contact:



Richard Dean – *Program Manager*
rdean@vdcresearch.com | 508.653.9000 x152

Eric Gulliksen – *Senior Analyst*
ericg@vdcresearch.com | 508.653.9000 x147

Jonathan Hastings – *Analyst*
jhastings@vdcresearch.com | 508.653.9000 x127

For complimentary insights and marketing data:

<http://blog.vdcresearch.com/ehw>

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