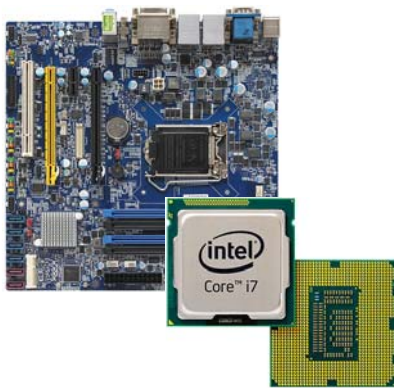


# Powering Up Intelligent Applications to Life with the 3rd Generation Intel® Core™ Processor based Industrial Motherboards (Ivy Bridge Platform)

A platform that delivers faster, smarter and more efficient processing power ideally for performance-driven and graphics/3D/HD intensive industrial applications such as Medical Imaging systems, Digital Signage, Security Surveillance, Gaming Stations, Point of Sale, Factory Automation Systems, Industrial Control Systems, Test & Measurement Systems, Industrial PC, ATM Terminal, and Intelligent Retail Kiosks.



*"The 3rd generation Intel Core processor family brings high performance, secure manageability, and strong visual capabilities to support a variety of intelligent systems," said Matt Langman, director of marketing, Intel Intelligent Systems Group. "Through higher performance and power efficiency, intelligent systems can support compute-intensive real-time analytics and the consolidation of multiple automation functions on a single platform."*

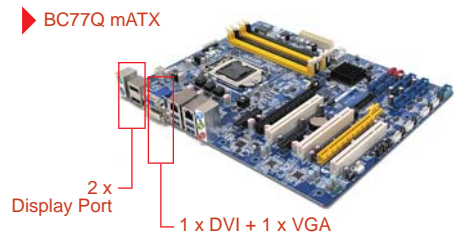
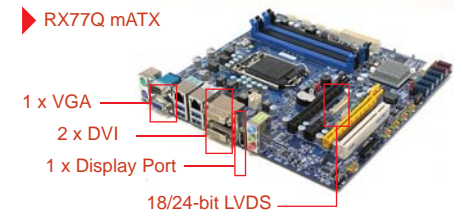


## Smaller, Faster, More Powerful yet Less Power Consumption

Intel® launched the 3rd generation Core™ processor, previously codenamed "Ivy Bridge", during the second quarter of 2012. Architectural and manufacturing process changes to this processor family include 22nm processor technology, the introduction of tri-gate (3D) transistors, the capability of supporting three onboard independent displays, PCI Express 3.0 and USB 3.0 by default. The tri-gate (3D) transistor allows up to 37% faster than Intel's current chip. Moving from 32nm to 22nm technology allows more transistors to be placed in the CPU which enables smaller, faster, more power efficient, low voltage and low power at the same time.

Following Intel's announcement, BCM released two Ivy Bridge platform based ATX and mATX motherboards, the BC77Q and RX77Q respectively. Both motherboards are equipped with the Intel® Q77 Express chipset and socket H2 LGA 1155 to support the 3rd generation Intel® Core™ processor family providing significant improvement in processing power and graphic performance. While the 2nd generation processor family can support two onboard displays, the BC77Q and RX77Q both provide a key feature enhancements enabling the systems to support three independent displays via Display Port (DP), DVI, HDMI or VGA ports with DX11, OCL1.1, OGL3.1 for rich HD/3D content while keeping the maximum TDP under 95 watts. (Comparison table on Page 3)

## Support Three onboard Independent Displays



"Products like our RX77Q and BC77Q provide powerful and stable technology building blocks to allow intelligent systems to flourish. Such systems help to enrich our lives through dramatic visual displays and intelligent interaction while at the same time simplifying problems and making our lives more easy and efficient. Intelligent systems are truly the path forward and our commitment to the Intel® Intelligent Systems Alliance is key for us to stay on course for the long run." said Tom Skibinski, vice president of sales for BCM Advanced Research.

## Smart Technologies Deliver More Security, Manageability

Both the BC77Q and RX77Q support Intel® Active Management Technology 8.0 which is only available for Intel® 7 and up series chipsets. Additionally, both motherboards support the newer generation operating systems such as Microsoft 32/64-bit Win Vista, Win 7 and Win 8.

New key features worth mentioning about the 3rd generation Intel® Core™ platform include Intel® Rapid Start Technology and Intel® Smart Response Technology providing faster and more stable communications when accessing the SSD drive with enhanced RAID support. Along with Intel® Trusted Execution Technology, this platform provides Intel® OS Guard and Intel® Secure Key which will double-up hardware based system security for those applications where high level security is required.

## Upgrade/Downgrade Through BIOS Upgrade Providing Scalable Performance

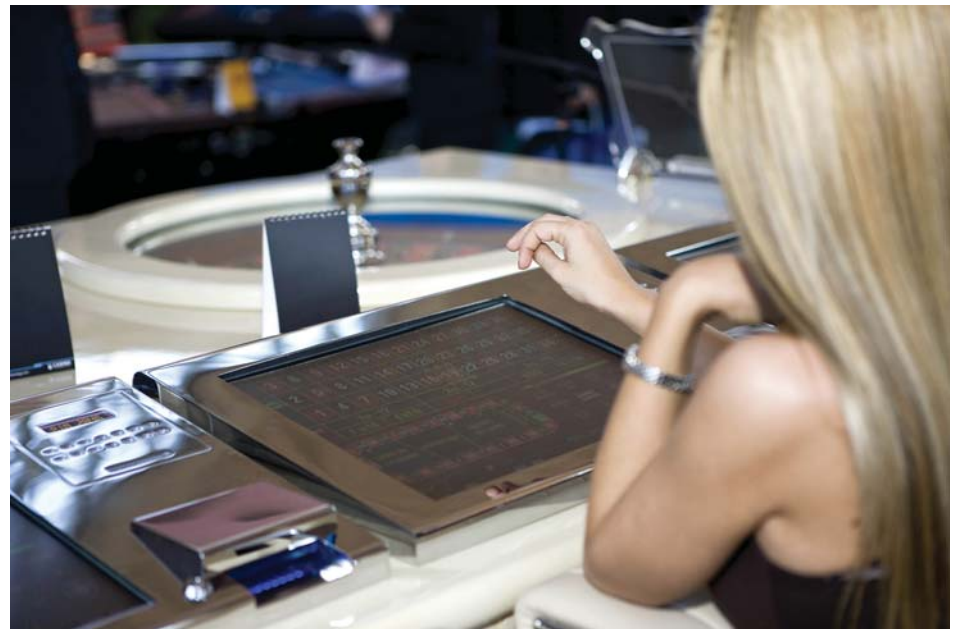
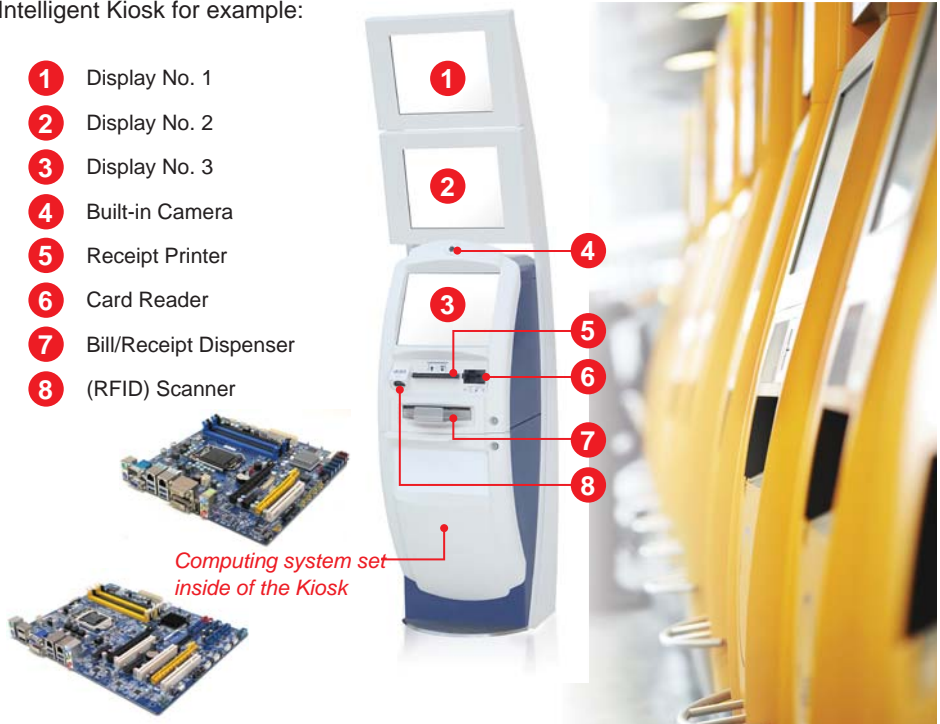
BCM's BC77Q ATX and RX77Q mATX motherboards are equipped with the LGA1155 socket which is able to support both 22nm and 32nm processors providing scalable performance on demand. BCM customers who already owned the 67Q series motherboards including BC67Q ATX, RX67Q mATX, RX67QV mATX, MX61H mini-itx with ATX power and RX61H micro ATX, are able to support the 3rd generation Intel® Core™ processors through this firmware upgrade.

*Picture (right): A woman is playing tabletop electronic roulette in the casino floor. Newer generation table games such as the electronic roulette, video blackjack, video poker and video slots, provide casino guests with different gaming experiences by offering HD audio/video content and interactions through touch of a screen. Guests no longer need to carry decks of chips or cash when they play. Every interaction is managed through the networked gaming platforms. Gaming machines like these require fast processing power, intensive graphic performance, multi-display capability, rich I/O interfaces and improved security. The Ivy Bridge platform is qualified to meet the above requirements.*

## Ideal for a Wide Range of Intelligent Systems including Retail Transaction Terminals, Digital Signage, and Gaming Platforms

Newer generation intelligent retail kiosks, digital signage systems and gaming platforms nowadays involve rich HD/3D video and audio content, video analytics, video conferencing and/or rich interaction with the users through single or multiple LCD monitors with touch capability. In order to handle complicated data like this, a performance driven hardware system with rich I/O interfaces and smart power management capabilities are required. Based on the Ivy Bridge platform design, the BC77Q and RX77Q can support high-end dual-core/quad core processors which will help speed up data communication and responsive time while keep overall TDP at 95 Watts.

Intelligent Kiosk for example:





## It's also ideal for Digital Security/Surveillance, and Medical Imaging Systems

Digital security and surveillance and medical imaging systems also require smarter and more efficient processing performance to handle intensive visual and graphic content and faster data transactions.



The BC77Q and RX77Q motherboards are also ideal for I/O demanding applications such as IP Cameras, ATM, Factory Automation, and Test & Measurement. To understand more about our custom motherboard and system designs based on Ivy Bridge platform, please contact BCM representative. We can be reached at 949.470.1888 or [BCMSales@bcmcom.com](mailto:BCMSales@bcmcom.com).

## Ivy Bridge (77Q series) and Sandy Bridge (67Q series) Platform Comparison Table

Comparison	Ivy Bridge Platform	Sandy Bridge Platform
CPU and Chipset Image (Intel® Core™ i7 series)		
<b>Processor</b>	3rd Generation Intel® Core™ Processor	2nd Generation Intel® Core™ Processor
<b>Processor Technology</b>	22nm	32nm
<b>Chipset (PCH)</b>	Intel® 7 Series Chipset	Intel® 6 Series Chipset
<b>Cache</b>	up to 8 USB	up to 8 USB
<b>PCI Express</b>	16 PCIe 3.0 (8GT/s) up to 4 Controllers	16 PCIe 2.0 (5GT/s) up to 4 Controllers
<b>Graphics / Display</b>	In-Tru 3D™, Intel® Quick Sync Video, Intel® Clear Video HD Technology	Same
<b>Onboard Display</b>	3 Independent Display	2 Independent Display
<b>Gfx APIs</b>	DX11, OCL1.1, OGL 3.1	DX10.1
<b>eDP</b>	Yes	Yes
<b>USB</b>	2.0 and 3.0	2.0
<b>Industrial Motherboards provided by BCM</b>		
<b>ATX Form Factor</b>	BC77Q	BC67Q
<b>mATX Form Factor</b>	RX77Q	RX67Q, RX67QV (with LVDS), RX61H
<b>mini-ITX Form Factor</b>	Available in OEM/ODM	MX67QM (ATX Power) and MX67QMD (DC12V), MX61H
<b>Intel® AMT</b>	Intel® Active Management Technology 8.0	Intel® Active Management Technology 7.0
<b>USB</b>	2.0 and 3.0	2.0
<b>DP/eDP</b>	Yes	No

\* Images of processors and chipset are Intel® intellectual properties



# Intel® Q77 PCH Industrial Motherboards supports 3rd Generation Intel® Core™ Processors



## Embedded Lifecycle Support through Intel® Intelligent Systems Alliance

BCM is an Associate member of the Intel® Intelligent System Alliance, a community of embedded developers and solution providers. Through this membership, Intel® provides its members with long life product support for its processors, chipsets and technologies to ensure at least 7 or more years life cycles.

Intel's long life product support enables the industrial motherboard manufactures like BCM to design and manufacturing long life embedded boards by using these high-quality, modular, standards-based building block components. Thus the benefits are extended to our ODM/OEM customers by helping them to design more efficiently knowing they can count on the industrial motherboard they have selected.

## About Intel® Intelligent Systems Alliance

The Intel® Intelligent Systems Alliance is one of the world's most recognized embedded and communications provider. This community offers customers a trusted supply line of Intel® based products and technologies. The alliance members are committed to provide ideal solutions and total lifecycle support to help customers develop quick time-to-market and faster time-to-profit applications.

## About BCM Advanced Research

BCM is a leading supplier of the long life industrial motherboards & systems serving our customers with turn-key stable computing platforms since 1990. We specialize in designing and manufacturing custom motherboards for industrial markets including gaming, retail, security and surveillance, industrial controls and automation, and medical equipment. In addition to customized ODM products, we also carry a broad line of off-the-shelf standard products in popular industrial motherboard form factors including Nano ITX, Mini ITX, mATX and ATX. For more information please visit BCM's website at [www.bcmcom.com](http://www.bcmcom.com). Additional information about Intel® embedded products, please visit [www.intel.com/embedded/](http://www.intel.com/embedded/).



### BCM Advanced Research

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BC77Q	RX77Q
<ul style="list-style-type: none"> <li>Three Ind. Display</li> <li>Gen 3 PCIe x16</li> <li>2 x DP, DVI, &amp; VGA</li> <li>3 PCI Slots</li> <li>4 x COM</li> <li>USB 3.0</li> </ul>	<ul style="list-style-type: none"> <li>Three Ind. Display</li> <li>2 x DVI, DP</li> <li>18/24-bit LVDS</li> <li>Gen 3 PCIe x16</li> <li>5 x COM</li> <li>USB 3.0</li> </ul>
Supports 22nm/32nm Intel® Core™ i7/ i5/i3 and Celeron® Processors	Supports 22nm/32nm Intel® Core™ i7/ i5/i3 and Celeron® Processors
Socket H2 LGA 1155	Socket H2 LGA 1155
up to 95W	up to 95W
Intel® Q77 PCH	Intel® Q77 PCH
4 x DIMM Sockets up to 32 GB Dual Channel 1333/1600 MHz DDR3	4 x DIMM Sockets up to 32 GB Dual Channel 1333/1600 MHz DDR3
AMI 64 Mb SPI BIOS	AMI® 32Mb SPI BIOS
<ul style="list-style-type: none"> <li>1 x PCIe x16</li> <li>1 x PCIe x4 (x16 Physical slot)</li> <li>2 x PCIe x1</li> <li>3 x PCI</li> </ul>	<ul style="list-style-type: none"> <li>1 x PCIe x 16</li> <li>1 x PCIe x 4 (x16 Physical lot)</li> <li>1 x PCIe x 1, 1 x Mini-PCIe</li> <li>1 x PCI</li> </ul>
Intel® HD Integrated Graphics	Intel® HD Integrated Graphics
2 x DP, DVI-D, VGA	2 x DVI-D, VGA, DP, 18/24-bit Dual Channel LVDS
1 x RS-232/422/485, 3 x RS-232	1 x RX-232/422/485, 4 x RS-232
10 x USB 2.0, 4 x USB 3.0	8 x USB 2.0, 4 x USB 3.0
2 x SATA III, 4 x SATA II	2 x SATA III, 4 x SATA II
RAID 0, 1, 5 and 10	RAID 0, 1, 5 and 10
1 x 16-bit GPIO	1 x 8-bit GPIO
LPT, 2 x PS/2	LPT, 2 x PS/2
Realtek® ALC892 HD Audio	Realtek® ALC887 HD Audio
Line-in, Line-out, Mic-in, SPDIF	Line-out, Line-in, Mic-in, SPDIF
Intel® 82579LM + 82583V	Intel® 82579LM + 82574L
2 x Gigabit LAN	2 x Gigabit LAN
12" x 9.6" ATX Form Factor	9.6" x 9.6" mATX Form Factor
Intel® AMT 8.0	Intel® AMT 8.0

Note: Product specifications might change without notice