

INVESTMENT GIANT STREAMLINES DESKTOP WHILE SUPERCHARGING USER EXPERIENCE WITH AMD RYZEN™ EMBEDDED V1000

A financial services powerhouse delivers a new standard in desktop computing with LG All-in-One powered by AMD Ryzen™ Embedded V1605B processors with AMD Radeon™ Vega graphics

INDUSTRY

Investment banking and financial services

CHALLENGES

Reduce physical footprint and energy consumption of desktop computing systems while ensuring high performance and enhanced user experience.

SOLUTION

Design and deploy new LG All-in-One powered by AMD Ryzen™ Embedded V1605B processors with AMD Radeon™ Vega 8 Graphics.

RESULTS

Delivered cutting-edge graphic performance and computing power, improving user productivity while reducing desktop footprint, maintenance, and TCO.

AT A GLANCE

AMD Ryzen™ Embedded V1605B processor with AMD Radeon™ Vega graphics

PARTNER



Leading in the finance industry requires thinking around corners and developing innovative new products and services, leaving competitors to fight over familiar turf. For one leading Wall Street investment bank, that philosophy led to changing the model of what a desktop computer should be. The idea: transform a high-end IPS LCD monitor from LG into an elegant, all-in-one desktop device powered by a next-generation AMD Ryzen™ Embedded V1605B processor.

"The all-in-one market is not very innovative. It's not very competitive," said the bank's Engineering Director of Computing Experience, who designs the hardware products for the bank's employees. "We saw an opportunity there to disrupt our workspace and the market and so did AMD and LG."

The bank's LG All-in-Ones consist of LG's 38-inch IPS LCD panel with the AMD Ryzen Embedded V1605B processor with four cores, eight threads, configurable DDR4 dual channel memory, and AMD Radeon™ Vega 8 Graphics behind the curved glass screen. The LG All-in-One features AMD Radeon FreeSync™ technology¹, HDR10 color, Bluetooth 5.0, PCIe® solid state storage, and an innovative silent, fanless design.

"We overbuilt these because we wanted features that enhanced the user experience and the performance," said the engineering executive. "LG's display technology was the perfect complement to AMD's graphics technology."

Technology wasn't the only criterion. "We need partners willing to change things up and deliver us the performance and the feature set we want. Unlike a lot of OEMs, LG was willing to take that challenge," he said.

"AMD's Embedded Team brought impressive detail, attention, and dedication to this product. They took six to eight months off our time to market by initially certifying the Ryzen 3 consumer processor for use in the All-in-One and providing embedded level support for it. That was tremendous." The executive explained that the team switched to the Ryzen V1605B when the V1000 processor family became readily available.

RYZEN EMBEDDED V1605B PROCESSOR TRANSFORMS HIGH-END MONITOR INTO A RICH COMPUTING EXPERIENCE.

Many of the firm's employees track multiple news feeds, securities tickers, and internal applications throughout their workday. In the past, their desktops held eight or more 19-inch monitors and a tangle of cords for computers, mice, keyboards, and phones. The engineering executive envisioned streamlining the desktops with a device that could handle all the high-performance demands of a Wall Street investment house, yet be as easy to use as switching on an appliance. He said the LG All-in-One achieved that goal.

"I don't know of any other partner willing to go the lengths AMD has gone with us to make our vision a reality," the engineering executive said. "That's why, from the features it offers to the experience it gives you, the LG All-in-One is a unique product."

*Global Investment Bank
Engineering Executive*

"It's 100 percent solid state. Put it on the desk; it cleans up the workspace and employees just use it. They don't need to worry about what's inside or fight to use the technology, so they are more productive," he said.

The LG All-in-One's built-in webcam and microphone save about \$200 per desk by eliminating installation of a physical phone. Bluetooth 5.0 minimizes wireless interference so that the LG All-in-One's wireless keyboard and mouse run smoothly and phone calls are stutter free. "It's little details like this that really set it apart from other devices," the executive said.

The device is also unique in that it is silent. There's no cooling fan, per the bank's vision. That was possible because of AMD's "Zen" processor architecture. While completing 52% more instructions per clock than its predecessor², the Zen core consumes only 25 watts. "We gave the processor a lot more horsepower yet saved fuel consumption at the same time," said David Rooney, Embedded Products Marketing Manager, AMD.

The energy-efficient unit draws between 40 to 50 watts total in typical use, compared to the maximum 205 watts drawn by a standard 38-inch monitor combined with a mini PC. That helps the bank reduce energy costs and maintain its facilities' LEED certifications.

"We are excited to partner with a customer to bring to life an entirely new computing paradigm leveraging the high performance AMD Ryzen Embedded V1605B processor. We look forward to our continued collaboration to deliver improved user experiences and enhanced business efficiency for the investment banking and financial services industry."

Rajneesh Gaur, Corporate VP & General Manager Embedded Solutions, AMD

Yet with significant compute and graphics power under the hood, the LG All-in-One not only displays 4K graphics but also can easily support applications for 3D modeling, graphing and analysis, and graphics creation, the bank's engineering executive said.

"We lowered OPEX, we lowered CAPEX, and we improved the experience," the executive said. "Everyone loves that it's curved. Everyone loves the high-end picture quality. Everyone loves that they don't have cables on their desks anymore," he said. The organization has deployed almost 15,000 LG All-in-Ones to date.

FUTURE-READY INNOVATION

AMD and LG collaborated with the engineering executive to make the LG All-in-One versatile and future ready. With DisplayPort and HDMI input ports, the system can be used as a stand-alone high-end monitor if need be. In addition, it can handle two video signals simultaneously, displaying them via split screen if desired. The LG All-in-One also processes 4K video, Dolby Vision, and Dolby Atmos. "Those are just becoming mainstream, but we wanted that functionality now so people can consume those formats right away," the engineering executive explained.

When using the V1605B processor with a discrete TPM 2.0, the LG All-in-One easily executes encryption and authentication tasks, vital in the heavily regulated financial services industry.

The engineering executive is intrigued at building future next-generation LG All-in-Ones with even more processing power.



ABOUT THE CUSTOMER

The customer is a leading multinational firm that offers investment banking, investment management, and securities services to a wide range of clients including corporations, financial institutions, governments, and individuals. With more than 30,000 employees, the firm is headquartered in the U.S. and maintains offices in all major financial centers around the world. The customer wished to remain anonymous for the purposes of this case study.

ABOUT AMD

For more than 45 years AMD has driven innovation in high performance computing, graphics, and visualization technologies – the building blocks for gaming, immersive platforms, and the datacenter. Hundreds of millions of consumers, leading Fortune 500 businesses, and cutting-edge scientific research facilities around the world rely on AMD technology daily to improve how they live, work, and play. AMD employees around the world are focused on building great products that push the boundaries of what is possible. For more information about how AMD is enabling today and inspiring tomorrow, visit amd.com/ryzen.

1. Radeon FreeSync technology requires a monitor and AMD Radeon™ graphics, both with FreeSync support. See www.amd.com/freesync for complete details. Confirm capability with your system manufacturer before purchase. GD-127.

2. Updated Feb 28, 2017: Generational IPC uplift for the "Zen" architecture vs. "Piledriver" architecture is +52% with an estimated SPECint_base2006 score compiled with GCC 4.6 -O2 at a fixed 3.4GHz. Generational IPC uplift for the "Zen" architecture vs. "Excavator" architecture is +64% as measured with Cinebench R15 1T, and also +64% with an estimated SPECint_base2006 score compiled with GCC 4.6 -O2, at a fixed 3.4GHz. System configs: AMD reference motherboard(s), AMD Radeon™ R9 290X GPU, 8GB DDR4-2667 ("Zen")/8GB DDR3-2133 ("Excavator")/8GB DDR3-1866 ("Piledriver"), Ubuntu Linux 16.x (SPECint_base2006 estimate) and Windows® 10 x64 RS1 (Cinebench R15). SPECint_base2006 estimates: "Zen" vs. "Piledriver" (31.5 vs. 20.7 | +52%), "Zen" vs. "Excavator" (31.5 vs. 19.2 | +64%). Cinebench R15 1t scores: "Zen" vs. "Piledriver" (139 vs. 79 both at 3.4G | +76%), "Zen" vs. "Excavator" (160 vs. 97.5 both at 4.0G | +64%). GD-108

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