



The Business Value of Intel-Based Workload Optimized Solutions

RESEARCH BY:



Mario Morales
Group Vice President, Enabling Technologies
and Semiconductors, IDC



Matthew Marden
Research Vice President,
Business Value Strategy Practice, IDC





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BUSINESS VALUE HIGHLIGHTS

Click on highlights below to navigate to related content within this white paper.

465%
three-year ROI

8 months
to payback

35%
higher revenue driven
by use

64%
improved performance,
customer-facing applications

60%
faster to deploy and extend
use of Intel-based solutions

51%
more efficient IT
infrastructure teams

135%
more productive
development teams

30%
lower comparative cost
of Intel-based solutions

Executive Summary

The adoption of high-performance computing (HPC) continues to be an essential ingredient for small and large enterprises across the IT and vertical industries as artificial intelligence (AI), edge, and data-centric workloads continue to proliferate at a tremendous scale.

This white paper is meant to share our assessment on solutions needed by a broad suite of customers and how Intel is closely collaborating with independent service and software providers to provide optimized system designs that integrate the latest hardware and software offering to address the appetite for higher performance, business scale, time to market, TCO, and efficiency across a broad set of workloads and market environments.

IDC spoke with Intel customers about their use of Intel-based workload optimized solutions running on Intel Xeon processors. The platform solutions used by customers interviewed for this study are designed to satisfy end-customer requirements that focus on a specific business need. They are Intel Xeon processor based, optimized with other Intel architecture hardware and/or software adjacencies, and reflect deployment of Intel-provided configurations (such as Intel Select Solutions) or are Intel partner-led configurations (such as Intel Market Ready Solutions).

Study participants described their Intel solutions as both customized to their needs and deeply impactful. They credited their Intel-based solutions with helping establish and maintain competitive and operational differentiation in complex and changing market environments. Based on interviews with these Intel customers.

IDC projects that they will achieve value that can result in an average three-year return on investment (ROI) of 465% by:

- **Addressing and generating more new business opportunities through compelling performance and custom functionality**, which results in higher revenue and competitive differentiation through the delivery of high-performing and unique products and services
- **Capturing efficiencies for the teams that manage and support their Intel-based solutions** through strong performance, support, and tight integration of hardware and software
- **Enabling development teams** to deliver more robust and valuable services
- **Reducing solution-related spend** by leveraging strong performance, scalability, and customization to meet business needs more cost effectively

Situation Overview

For decades, advancements in process technology and silicon design and the industry's conviction to Moore's law predicted the performance gains of microprocessors, transistor functionality, and the path of integration in system on chips (SoCs). These advancements were instrumental in establishing the cadence of growth and scale of client computing, smartphones, consumer electronics, and cloud infrastructure markets over the past 30 years.

The pandemic has also revealed how essential computing technologies are on the journey toward digital transformation and recovery. Applications and services have had a direct impact on how and where we work and where we live. Even where we use compute will continue to evolve as we move from our smartphones back to our PCs, inside our vehicles, and surrounding infrastructure — ultimately using devices that are more personal, embedded, secure, and autonomous.

This computing continuum only accelerates moving forward, and enterprises and end users can no longer do it on their own. You must collaborate and partner for your organization to capitalize on the opportunities shaping the landscape. What we learned from our interviews for this study is that a technology supplier that brings solutions to the market can only find success if the company provides the right balance of value, velocity, and scale as it works hand in hand with each customer.

Intel-Based Workload Optimized Solutions

Intel is closely collaborating with independent service and software providers to provide optimized solutions that integrate the latest hardware and software offerings to address the appetite for higher performance, business scale, time to market, TCO, and efficiency across a broad set of workloads and market environments.

The Business Value of Intel-Based Workload Optimized Solutions

Study Demographics

IDC interviewed nine consumers of Intel Xeon processor-based solutions for this study and considered five of these interviews for purposes of the quantitative and financial analysis contained in this document. Interviews were in-depth in nature and designed to understand the impact of using Intel-based workload optimized solutions on business results, IT operations, and solution-related costs. The Intel-based solutions covered during interviews run on Intel Xeon processors and are both validated directly by Intel and created by and sold through Intel partners.

Study participants considered for IDC's quantitative analysis had the overall profile of a small to medium-sized business with 797 employees and \$75.5 million in revenue on average (140 employees and \$20.5 million by median, respectively). Several of the interviewed organizations are in the process of significantly scaling their business operations with support of their Intel-based workload optimized solutions, suggesting that at least some of them will see substantial revenue increases in coming years (see **Table 1** for additional firmographic information).

IDC also interviewed several larger organizations, including two with more than 10,000 employees, that were considered qualitatively in our assessment but not factored for this study's financial model section of the work. These large organizations reported achieving gains in cost, efficiencies, and performance similar to other interviewed organizations using Intel-based workload optimized solutions.

TABLE 1
Demographics of Interviewed Organizations

	Average	Median
Number of employees	797	140
Number of IT staff	12	10
Number of business applications	23	22
Revenue per year	\$75.46 Million	\$20.5 Million
Countries	United States (3), Poland, United Kingdom	
Industries	Education (2), financial software, nonprofit, scientific research	

n = 5 Source: IDC in-depth interviews, July 2021

Use Cases for Intel-Based Workload Optimized Solutions

Intel customers that were interviewed described their Intel-based workload optimized solutions as both impactful and customized, which has enabled them to address specific business opportunities and establish unique value propositions. The Intel-based solutions varied considerably but shared commonalities such as very high performance and differentiated functionality. These shared benefits reflect the fact that study participants have benefited from tight integration and strong performance for the software layers running on Intel Xeon processors and hardware.

Intel-based solutions covered during interviews included the following solutions used by study participants:

- Classroom learning platform for a high school that enables robust in person and remote learning, including during the worst periods of the COVID-19 pandemic
- High-performing infrastructure foundation for running a fluid dynamics model that requires optimization of cognitive services and AI models
- Unified networked audio and control platform to run and support interactive exhibits
- Zero trust system to run and share complex and sensitive algorithms behind medical models but without implicating concerns about data privacy
- High-performant HCI foundation for medical records system
- Confidential computing services for complete data encryption of services
- Infrastructure foundation for next-generation telecommunications network
- Improve software functionality relying on Big Data/machine learning capabilities
- “Workload-specific infrastructure” tailored and delivered to meet specific customer requests/demands

Study participants spoke of their need for tailored, high-performing solutions as the basis for investing in Intel-based workload optimized solutions, whether in direct partnership with Intel or through Intel partners. They commonly described reaching a point at which business as usual was no longer sufficient and realizing that they needed customized solutions to deliver the highest performance levels possible for both their hardware and software. Of course, finding solutions that meet these needs is not simple; thus study participants turned to Intel and Intel partners to provide specific and customized solutions to meet their most fundamental business requirements:

→ Turnkey with high performance, ability to customize:

“Because we use the network audio system in all our installations, the Intel-based solution does everything for running audio in a large building, including playing sound files, mixing them, doing conference calls, and giving presentations. It’s a sophisticated system ... You have all this turnkey bulletproof hardware that runs on a standard network and the ability to customize it, so it’s perfect for us.”

→ **Foundation for next-generation business technology:**

“For our wireless network, we are deploying a 5G network based on OpenRAN technology, and Intel is our partner. All of our radio network, the software that transfers the RAN, and the BUNCU run over Intel technology.”

→ **Allows for development, delivery of differentiated services/solutions:**

“The Intel-based solution is part of our ‘special sauce’ and that is the true business value. It allows us to solve hard problems not easily solved by customers or other service providers. Without this Intel relationship and without these capabilities, we would struggle to differentiate ourselves competitively.”

Table 2 provides details about study participants’ use of Intel-based workload optimized solutions. The varied nature of study participants’ use makes it somewhat challenging to aggregate, but the 32 Intel “devices” used by 773 employees on average reflects the significant use cases that they have put in place for their Intel-based solutions. Perhaps most critically, interviewed organizations linked an average of 85% of their revenue to use of their Intel-based workload optimized solutions, reflecting the centrality of these solutions to their business success.

TABLE 2

Intel-Based Workload Optimized Solution Environments

Firmographics	Average	Median
Number of Intel “devices”	32	13
Number of physical servers	4	1
Number of virtual machines	27	0
Number of terabytes	46	10
Number of business applications	8	5
Number of internal users	773	415
Revenue	85%	90%

n = 5 Source: IDC in-depth interviews, July 2021

Business Value and Quantified Benefits of Intel-Based

IDC's research demonstrates the strong value that Intel customers are realizing by leveraging Intel-based workload optimized solutions running on Intel Xeon processors to meet specific business and operational needs. Through use of these Intel solutions, customers described capturing differentiating business and performance gains, along with realizing important operational efficiencies and solution-related cost savings.

They spoke of the transformative and fundamental nature of these benefits in their own words:

→ Provides foundation for business:

"The business value is that half of our company's revenue is derived from our ability to deliver Intel workload optimized solutions. That is really what it all comes down to. We wouldn't be where we are today without that value proposition ... We use 'workload-specific infrastructure' as our tagline because that's one of our unique value propositions."

→ Enables high-quality remote learning:

"We wouldn't be able to function without our Intel workload optimized solutions. Teachers would have to do distance learning from their laptops, and it just wouldn't work."

→ Brings scalable automation:

"We see the enormous value of the Intel-based workload optimized solutions allowing us to automate at scale as our service model takes hold and our company grows ... There's huge value in knowing that we can design in a fairly rapid and scalable fashion."

Interviewed Intel customers reported achieving substantial value in several areas through their use of Intel-based workload optimized solutions, including higher revenue, staff efficiencies and enablement, and direct cost savings. Based on interviews, IDC calculates that these customers will realize benefits worth an annual average of \$1.31 million per year in the following areas:

→ Business productivity benefits:

Study participants build and deliver unique products and services with their use of Intel-based workload optimized solutions, which provide competitive differentiation and a more robust value proposition. As a result, IDC projects they will realize higher net revenue worth an average of \$628,800 per organization per year.

→ IT staff productivity benefits:

Study participants reported needing less staff time to manage, run, and support more efficient Intel-based workload optimized solutions. This results in efficiencies for these teams and frees time to work on other innovative- and business-related activities. IDC calculates that study participants will achieve staff time savings and efficiencies worth an average of \$322,600 per year.

→ **Application development productivity gains:**

Study participants linked use of their Intel-based workload optimized solutions to more effective and valuable development efforts. This means that development teams deliver more value to their organizations, which IDC estimates will be worth an annual average of \$222,800 per organization in higher productivity.

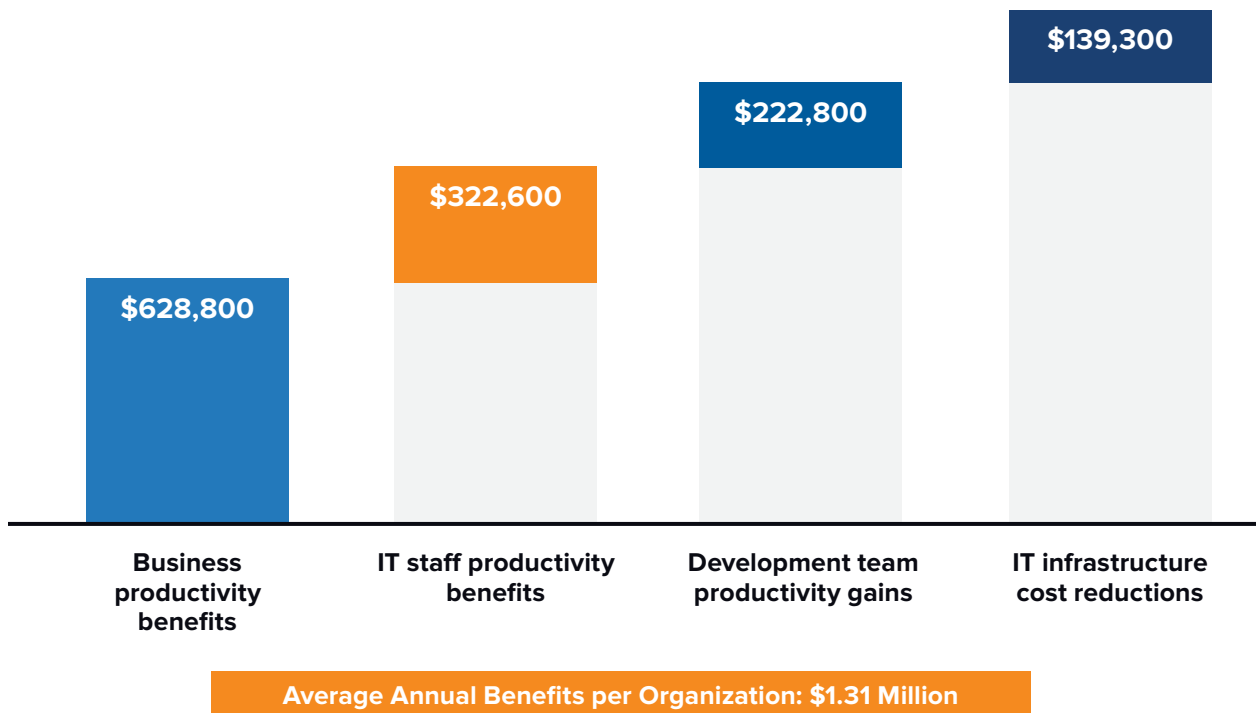
→ **IT infrastructure cost reductions:**

Study participants described optimizing costs related to building and running their Intel-based workload optimized solutions, benefiting from higher performance and customization. IDC puts the value of cost avoidances and savings at an annual average of \$139,300 per organization.

As previously noted, IDC also interviewed several larger organizations for this study that were not included in the financial model driving this study’s results, although they reported achieving gains in cost, efficiencies, and performance similar in nature to other interviewed organizations. IDC expects that larger organizations with more extensive use of Intel-based workload optimized solutions would achieve total benefits that would scale in line with their larger operations (see **Figure 1**).

FIGURE 1
Average Annual Benefits per Organization

(\$ total benefits)



n = 5 Source: IDC in-depth interviews, July 2021

Improved Performance and Agility

Customers confirmed that the performance of their Intel-based workload optimized solutions have completely changed how they run their businesses and carry out day-to-day activities in many respects. As previously noted, the Intel-based solutions mostly sit at the core of organizations' businesses and missions. In turn, the mission-critical nature of the Intel-based solutions results in much stronger performance as hardware capabilities and software integration yield a strongly positive impact on a day-to-day basis.

Participants described the specific performance results they have achieved, including for applications, customer-facing services, and running complex algorithms:

→ Capturing substantial improvements to application/service performance:

"We saw a significant performance improvement of 300% ... These numbers are real. This is the value of what can be done to optimize workloads when you have an application, a very specific accelerator, in this case meaning the memory, to improve caching and response times and indexing of this specific application."

→ Driving much faster algorithm performance:

"With the use of OpenVINO with our Intel-based solution, we are improving the performance of our algorithms by 10 times."

→ Ensuring value proposition through performance:

"Our performance metrics with our Intel-based solution in terms of IOPS, latency, and data protection cannot be beat. The value proposition is just unbelievable."

Such significant improvements in performance not only result in improved customer and employee experiences but also bring cost and agility benefits. Stated succinctly, study participants can maintain more streamlined environments and can often leverage strong integration and high performance to complete solution deployments and extensions in less time. One study participant noted that high performance allows it to more cost-effectively ensure robust security: *"Generally speaking, you tend to give up performance to get more security. Our goal is to deliver both and minimize the cost of security ... Without Intel, it would be more costly, and it would take significantly more time."* Another interviewed Intel customer commented on how robust performance saves money for its customers, thereby making its solutions more attractive: *"Algorithm owners are looking at half the cost and time to get their innovations out using our Intel-based platform. It's at least a 12-month reduction of time for them in accelerating things that are just completely stalled because of data access."*

Figure 2 shows the significant impact for study participants of their Intel-based workload optimized solutions on performance and agility. Measured in terms of latency, they reported that internal-facing applications and services have seen average performance improvements of 85% and customer-facing applications and services 64%. Meanwhile, study participants reported that they can deploy and extend their Intel-based solutions in 60% less time on average, potentially shaving weeks or even months off the time required to provide needed functionality to their businesses and customers.

FIGURE 2

Impact on Performance

(% improvement)



n = 5 Source: IDC in-depth interviews, July 2021

Business Benefits

Study participants reported that their Intel-based workload optimized solutions not only are integral to their business activities and operations but also have often provided differentiation that enables them to deliver unique value to their customers. For these Intel customers, business differentiation connects to their ability to offer solutions and services with performance and security levels required by their customers, as well as being able to move much faster to meet customer needs. The outcome has been very impactful: They better address the needs of current customers, respond better to clear business demand, and establish differentiation in terms of functionality and approach, which can open access to new types and groups of customers.

Interviewed Intel customers spoke of how their use of Intel-based workload optimized solutions has spurred much improved business results by being able to meet customers at their point of demand:

→ Provides basis for meeting customers' needs:

"Our business is 2–3 times better because customers realize the value of the Intel-based workload optimized solution ... The technology and software solutions that Intel is building ... allow us to solve harder problems. Our customers want to spend more money because spending the money gets them a return."

→ **Creates preconditions for offering service to customers:**

“Our product wouldn’t exist in this manner if we didn’t have our Intel-based solution. If we couldn’t ensure zero trust for our customers, then it would take at least 18 months to convince a CIO and CSO to trust us that we would protect their data. Our sales cycle would go from 90–120 days to 18 months overnight.”

→ **Allows for creation of unique service:**

“The ROI of using our Intel-based solution in terms of efficiency and effectiveness is coming from the collaboration across [our potential customers] from federated machine learning. But federated machine learning is only possible when there is trust in the algorithm and the movement of the algorithm, which is made possible by the security layers we’re building in with our Intel-based solution.”

→ **Enables operations during COVID-19:**

“We’ve seen an uptick in our enrollment by maybe 20%. We had midyear enrollments, which is abnormal for us ... I will tell you that parents are looking for options where their students can be in person for school ... So by us having an Intel-based platform that can support both remote and in person learners at the same time allows us to provide a safe environment ... It’s changed everything.”

Study participants also spoke of how their Intel-based solutions have enabled them to better scale their business operations and ensure high internal productivity:

→ **Delivers needed scalability and performance:**

“Our Intel-based solution allows us to scale. Also, we need to provide as much performance as possible because we can’t redesign the database that is running on our Intel solution ... There’s a lot of value for us in being able to virtualize our SQL workloads so that we can move those around for high availability for disaster recovery, and for the ability to scale up and down for easier use.”

→ **Improves performance to drive higher productivity:**

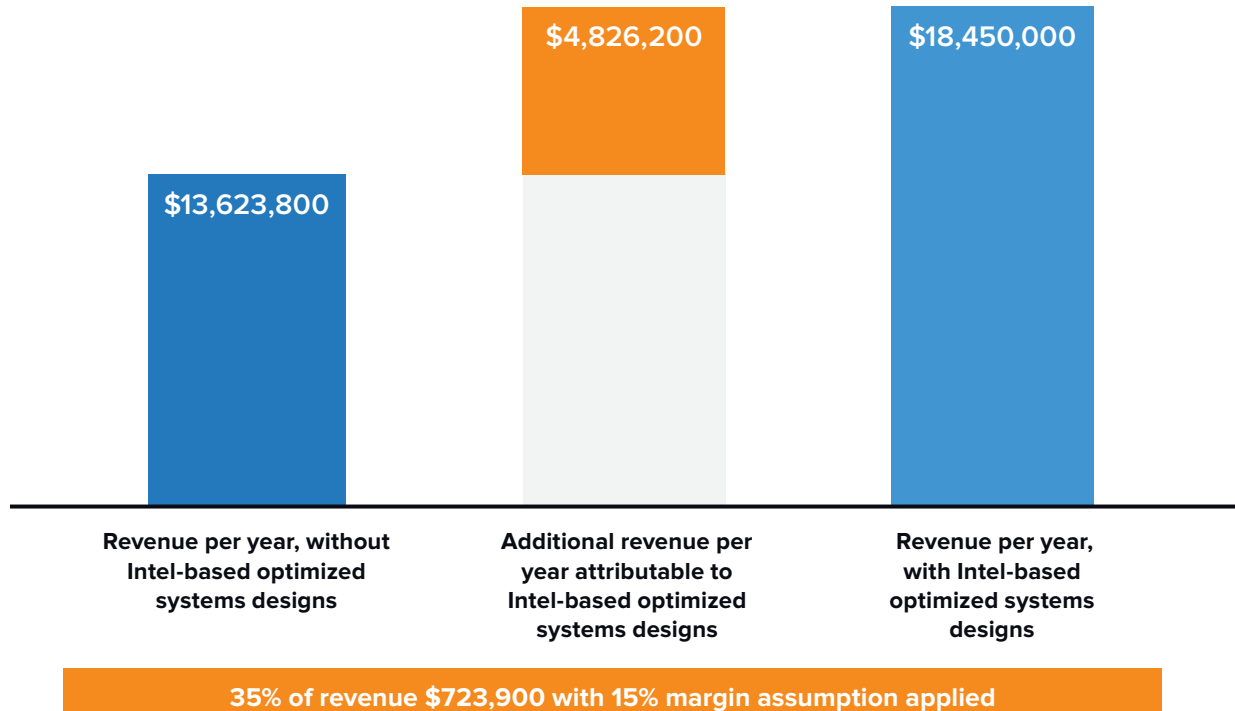
“Our Intel-based solution impacts other departments because they don’t have to wait on us. If you have a complex audio system and any part of it goes down, other people wait for you to repair it. Now, there’s never a time when people have to wait on audio to fix a problem — each department easily saves 5% of their time.”

Figure 3 shows IDC’s analysis of the business impact for study participants of using their Intel-based workload optimized solutions. Study participants tied an average of 35% of their related revenue to their Intel-based solutions, or \$4.83 million of higher revenue per year. For purposes of IDC’s Business Value model, IDC applied a 15% margin assumption, meaning that it considered average net revenue gains of \$723,900 per organization per year in calculating the return on investment of study participants’ use of Intel-based workload optimized solutions.

FIGURE 3

Revenue Impact of Intel-Based Workload Optimized Solutions

(\$ per organization per year)



n = 5 Source: IDC in-depth interviews, July 2021

IT Infrastructure Team Efficiencies

In addition to business gains, study participants reported that their Intel-based workload optimized solutions require less staff time to manage, run, and support on a day-to-day basis. They linked efficiencies for IT infrastructure and other teams to improved performance, deep software, and hardware integration and having end-to-end solutions. Several interviewed Intel customers described the nature of these staff efficiencies:

→ Substantial staff efficiencies:

“Our Intel solution easily cuts our IT team’s workload in half, and that is huge. When we’re installing buildings and doing audio, we would waste a lot of time running around trying to touch each individual piece of equipment. But by having a consistent network solution, we can do anything needed with a laptop from anywhere.”

→ Improved performance means less need for support:

“Our maintenance team had to make sure that sound systems worked properly, which was constantly an issue, or replace projector bulbs, or make sure teachers having connection issues wireless. We removed all of those issues by doing this solution with Intel.”

Table 3 demonstrates the impact of study participants’ Intel-based workload optimized solutions on their IT infrastructure teams. Interviewed Intel customers require 51% less staff time to run equivalent environments; they require the time of only 3.5 team members to do what they would otherwise require more than 7 team members to do without their Intel-based solutions.

TABLE 3
IT Infrastructure Team Impact

	Before/Without Intel-Based Optimized System Designs	With Intel-Based Optimized System Designs	Difference	Benefit
FTEs required for equivalent workloads	7.2	3.5	3.7	51%
Value of staff time required for equivalent workloads	\$721,400	\$350,000	\$371,400	51%

n = 5 Source: IDC in-depth interviews, July 2021

Application Development Productivity Gains

Interviewed organizations also reported enabling development activities related to their Intel-based workload optimized solutions. Enhanced development results from having more agile solutions and infrastructure, which allows development teams working on and adding functionality to Intel-based solutions to deliver more timely and robust enhancements and functionality. Several study participants described how development activities have benefited from their Intel-based solutions:

→ **Speeding development cadence:**

“Our Intel solution shortens the overall software development life cycle. It really depends on the application, but we used to get a release every six months and now we can get a release every two weeks.”

→ **Increasing effectiveness of development:**

“We would have to triple or quadruple our development staff without our Intel-based optimized workload solution. Developing technology is not our core value, so it would be more of a nuisance to technically try to figure out how to produce the protection that the solution provides to us.”

Table 4 shows the average productivity improvements for development teams impacted by use of study participants’ Intel-based solutions. These developers have on average more than doubled their productivity levels (135% higher productivity), which reflects the marked increase in their ability to deliver new features and functionalities to their businesses.

TABLE 4
Application Development Team Impact

	Before/Without Intel-Based Optimized System Designs	With Intel-Based Optimized System Designs	Difference	Benefit
Productivity level of development teams, FTEs per organization	1.9	4.5	2.6	135%
Value of staff time required for equivalent workloads	\$190,000	\$446,500	\$256,500	135%

n = 5 Source: IDC in-depth interviews, July 2021

Optimized IT Solution Costs

Study participants further noted that their Intel-based workload optimized solutions have proven to be cost effective. They described leveraging enhanced hardware capabilities, performance, and integration to achieve various cost avoidances and reductions compared with their previous solutions and/or approaches. These cost-related benefits tied to:

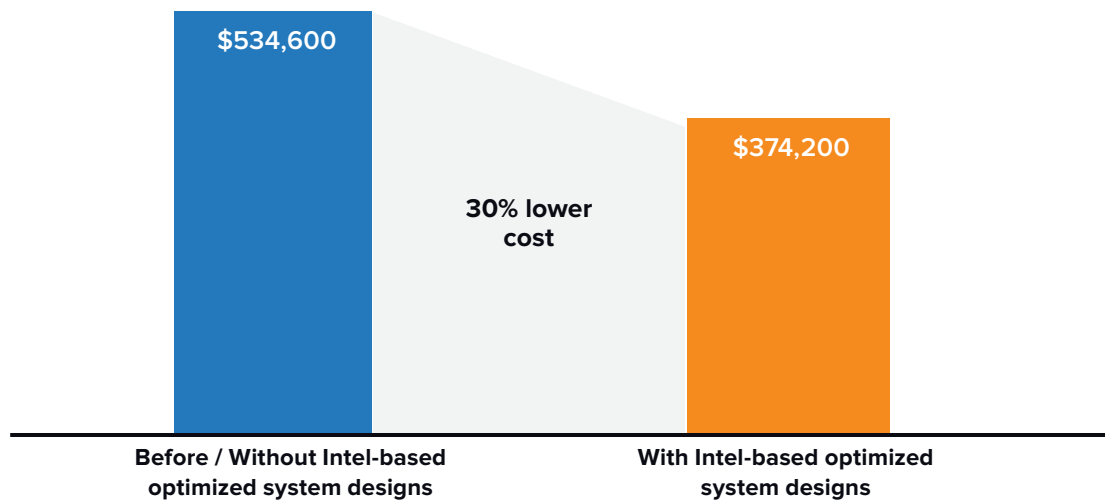
- **Increasing virtual machine (VM) density, thereby optimizing hardware requirements:**
“Moving to Intel Xeon Scalable, and the optimizations that have been made around virtualization, cryptography, and things of that nature, has probably netted us a 20–35% increase in VM density.”
- **Realizing storage savings:**
“By being able to use a lot of that cloud storage for our Intel-based workload optimized solution, it’s allowed us to not invest more into on-premises storage. That probably equates to about a 20% savings.”
- **Delivering affordable performance:**
“We quickly started to outgrow the capacity of our older systems in performance and storage, and we were running into bottlenecks. We had to find solutions that would give us more performance but were still affordable for a nonprofit ... That’s what we found in this solution from Intel.”
- **Balancing cost and security functionality:**
“When you add layers of security to a system, you pay the price in performance. By using our Intel-based workload optimized solution and getting the security down to the chip, we pay a lower price.”

In addition, several interviewed Intel customers explained that, by establishing more cost-effective IT and business operations with their Intel-based solutions, they can provide their customers with higher functionality at a lower cost. One study participant commented: *“For the customers, it is more cost efficient with Intel-based workload optimized solutions because they just pay the license for our software, and don’t have to upgrade their hardware. On our side, it’s easier to sell just our software and not to force the customer to upgrade the infrastructure on their side; so it shortens the sales cycle.”*

As shown in **Figure 4**, IDC projects that study participants can deploy and run their Intel-based workload optimized solution at a 30% lower cost over three years than their previous approaches. For interviewed Intel customers, this equates to average savings of more than \$160,000 per organization over three years, even as they achieve the significant business and performance benefits described in detail in this study.

FIGURE 4 Comparative Cost of Solutions

(\$ over three years)



n = 5 Source: IDC in-depth interviews, July 2021

ROI Summary

Table 5 provides IDC's analysis of the benefits and investment costs for study participants of using their Intel-based workload optimized solutions. IDC projects that interviewed organizations will on average realize benefits in the form of higher net revenue, staff efficiencies and productivity gains, and lower solution-related costs worth \$3.10 million over three years (\$401,300 per 100 users of Intel-based solutions). To achieve these benefits, study participants will invest a discounted average of \$0.55 million per organization over three years (\$71,100 per 100 users). These levels of benefits and investment costs would yield an average three-year return on investment of 465%, reflecting the strong value of Intel-based workload optimized solutions, with breakeven in investment occurring in an average of eight months.

TABLE 5
ROI Analysis

	Three-Year Average per Organization	Three-Year Average per 100 Users
Benefit (discounted)	\$3.10 million	\$401,300
Investment (discounted)	\$0.55 million	\$71,100
Net present value (NPV)	\$2.55 million	\$330,200
Return on investment (ROI)	465%	465%
Payback period	8 months	8 months
Discount rate	12%	12%

n = 5 Source: IDC in-depth interviews, July 2021

Challenges/Opportunities

Industry change always brings new technology and business barriers that must be overcome. IDC fundamentally believes that the quantity of data we generate as an industry will continue to outpace the computing capability of our systems we have available today. The only way to truly mine the potential of data-centric computing for human analysis is to embrace a new computing paradigm with flexible, heterogeneous architectures that empower every layer of the hardware, software, and application stack and establish close partnerships and collaboration with customers as new business models and workloads continue to come to market.

There will be a range of hardware and software solutions vying to address the ever-changing computing requirements of our digital enterprises. OEMs and technology suppliers should not be confined to traditional metrics, features, and channels when offering a solution to address their enterprise customer requirements. Just like computing is ubiquitous today, AI is next, which will unleash a scale of innovation that will address the most complex problems that we can only imagine today.

Navigating through the scaling requirements of each customer continues to be our largest challenge and opportunity for technology suppliers. By establishing a framework of collaboration early on with customers and investing in optimized solutions and platforms that focus on business outcomes and revenue generation, technology suppliers immediately establish a level of trust that extends beyond a specific product family and statement of work. The solution brings together a true partnership where the supplier and customer benefit and align on business goals, time to market, and customer satisfaction. This type of bond in a partnership and solution is what customers will line up for in the IT and operational technology industry for years to come.

Conclusion

High-performance computing has become more central to organizations' efforts to deliver solutions that meet specific business needs, in terms of creating competitive differentiation and delivering the best possible user experience for both customers and employees. However, leveraging HPC to the fullest extent can be complex, which has created an impetus for vendors to provide integrated solutions tailored to address specific business needs. Intel is one vendor closely collaborating with independent service and software providers to offer these types of optimized solutions that integrate the latest hardware — including Intel Xeon processors — and software offerings to deliver higher performance, business scale, time to market, and operational and cost efficiencies.

IDC's research with organizations using various Intel-based workload optimized solutions running on Intel Xeon processors demonstrates the considerable value they achieve by better meeting their business and operational needs. Interviewed Intel customers reported business and performance gains that allow them to establish and maintain competitive differentiation, even as they also realize operational efficiencies and cost savings that result in lower total costs of supporting their business activities. In many cases, they linked their use of Intel-based workload optimized solutions to achieving capabilities and value that are truly transformative for their organizations (i.e., that the differentiated value that they present to their customers hinges on their use of their Intel-based optimized workload solution). While specific use cases vary, the common thread across interviews was the organizations' realization of strong value with their Intel-based workload optimized solutions, reflected in IDC's finding that they will earn an average three-year return on investment of 465% with breakeven in investment occurring in an average of eight months.

Appendix

Methodology

IDC's standard Business Value/ROI methodology was utilized for this project. This methodology is based on gathering data from organizations currently using Intel-based workload optimized solutions as the foundation for the model. Based on interviews with organizations using these Intel solutions, IDC performed a three-step process to calculate the ROI and payback period:

1. **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of using Intel-based solutions.** In this study, the benefits included higher revenue, staff time savings and efficiencies, and solution-related cost savings.
2. **Created a complete investment (three-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using Intel-based workload optimized solutions and can include additional costs related to migrations, planning, consulting, and staff or user training.

- 3. Calculated the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments for the organizations' use of Intel-optimized software over a three-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

- Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings. For purposes of this analysis, based on the geographic locations of the interviewed organizations, IDC has used assumptions of an average fully loaded salary of \$100,000 per year for IT staff members and an average fully loaded salary of \$70,000 per year for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).
- The net present value of the three-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.
- Because IT solutions require a deployment period, the full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

Note: All numbers in this document may not be exact due to rounding.

About the Analysts



Mario Morales

Group Vice President, Enabling Technologies and Semiconductors, IDC

Mario Morales is the group vice president of IDC's enabling technologies, semiconductor, storage, and DataSphere research.

He is responsible for in-depth analysis, evaluation of emerging markets and trends, forecasting, and research of major semiconductor industry segments such as embedded and intelligent systems, wireless, personal computing, networking and cloud infrastructure, automotive electronics, and AI semiconductors.

[More about Mario Morales](#)



Matthew Marden

Research Vice President, Business Value Strategy Practice, IDC

Matthew Marden is a Research Vice President in the IDC Business Value Strategy team. He is responsible for carrying out custom business value research engagements and consulting projects for clients in a number of technology areas with a focus on determining the return on investment (ROI) of their use of enterprise technologies. Matthew's research often analyzes how organizations are leveraging investment in digital technology solutions and initiatives to create value through efficiencies and business enablement.

[More about Matthew Marden](#)

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