Douglas Davis - 9-14-10

[Beginning of recorded material.]

Female Voice: Ladies and gentlemen, please welcome Doug Davis.

Doug Davis: Good morning, and thanks again for being with us here today. When my children were really small – now bear in mind they're 17 years old, my daughter's 17, she's a senior in high school, my son's 13, so now officially a teenager – but when they were really small, they loved children's books. They'd go off and find a book, one kind of like this, it's called Oh, the Places You'll Go! They'd bring that book, they'd sit on my lap, and they'd ask me to read a story to them. And what I remember about those stories is they talked about just magical places, really creative characters, and amazing adventures, and they really sparked the imagination.

So when I was contemplating what I wanted to talk with you about today regarding the Atom processor, I really thought about these kinds of children's stories. We're seeing Atom designed into so many different applications, and I started thinking about where will it go? What will it do? And what kind of amazing experiences will it enable for us?

So in Paul Otellini's keynote yesterday, he talked about all of the changes that are happening with respect to connected computing. Now, we all know the Internet has evolved substantially over the past several years, and it's become a rich environment for us to be able to work and play. But we know that it's only just beginning in

areas like handheld, consumer electronics, and embedded applications.

We're really at an inflection point in history for all of you developers out there to create new applications using this new Atom processor. The interesting thing about these new applications, they'll all connect to the Internet. And we think about these new computing devices connecting to the network, this is what we really refer to as the compute continuum. And when you look one layer deeper into this continuum, we see that Atom just opens up a whole new universe of applications. Atom will create new categories of devices, and it'll transform existing devices, as well.

And to give you an idea of some of these, we thought we'd come up with some creative ideas for the future, maybe. So I kind of pondered, where will Atom go? Well in the future, it'll end up in an electric motorcycle going 130 miles an hour down a racetrack, while sending information back to the pit crew about the diagnostics of how the motorcycle is operating.

In the future, we'll have treadmills at the gym that can connect to the Internet, so while you're slogging away on that treadmill, you can connect to the Internet, get that TV show that you missed last week or stream your favorite Internet radio station while you're working out.

In the future, Atom will go in digital signs on taxicabs, so as these taxis are going through the cities, the ads are changing based on location or even the time of day. In the future, Atom will allow us to take terabytes of information, videos, photos, our important information, and safely store them on a home storage network powered by Atom.

Well, I'm excited to say that the future is now. I have behind me real examples of the devices I've just described. We have an electric motorcycle from a company called Mavizen. We have a treadmill that was created by Star Trac and Netpulse. We have a taxicab digital signage example from Emerson, and we have a home storage device that was created by a company called Tranquil PC. All of these devices are transformational in their categories, all of them leading to changes in their markets, and all of them powered by Atom.

So what do all of these devices have in common? Well, first they're connected to the network. They're connected by Ethernet, Wi-Fi, 2.5G, 3G, WiMAX, and even soon they'll be connected with LTE. And it's the connectivity that really fuels the innovation in these kinds of devices.

Second they represent the breadth of OS in applications and the flexibility that Atom provides as being an Intel Architecture based device. They deliver that port-of-choice capability. Atom supports a multitude of operating systems from Windows to MeeGo to

Android to VxWorks and many, many more operating systems as well.

And third, they represent the ease of design that comes with Intel Architecture. There are over 15 million x86 software developers out there today. And the reuse of drivers, codex, middleware, and applications that come from the PC world into an Atom platform make the development of these devices even easier.

We frequently hear from developers how they're able to create a new application in the PC kind of workspace and move it into a low-power, small-footprint kind of application without having to port to a different architecture. And we've even had some of them that have told us that they've been able to do this literally over the weekend.

And the last characteristic is intelligence. And what we mean by intelligence is the ability to deliver uncompromised kind of performance beyond just general purpose computing kinds of applications. And from the examples that I gave you up here, each of them is delivering industry-leading performance all on different types of workloads.

Now, since we launched Atom in April of 2008, we've achieved some pretty substantial milestones. We've shipped over 70 million units into netbooks. We have over 3,000 design engagements and over 1,200 design wins. The other interesting thing is that for all the

units that we've shipped to customers so far, over 40 percent of those customers have been new to Intel.

We've also built a portfolio of SOC devices. We have the D-series of products for entry desktops. We have the N-series of products for netbooks. We have the Z-series for handhelds and tablets. We have the CE-series for consumer electronics. And then today we're going to talk about a new one. It's the E-series for embedded applications, and I'll talk to you a little bit later about that.

So we're just getting started. So back to my theme, you know, where will this story take us first? How about consumer electronics? The consumer electronic space, as you've heard all of us talking about, is really an exciting area for Intel, and we're really happy to be in a position of leading in this area of smart TV.

In his opening keynote yesterday, Paul Otellini gave you a premier example of the kind of experiences we'll all get to enjoy when he showed you what we're doing with Google TV and the Sony and the Logitech products that'll be in the market later this fall. I'm going to talk a little bit more about smart TV and some of the technology behind this transformation, but I thought we should start first with maybe a little better definition of what smart TV is all about.

It's really kind of a new experience. It brings what you enjoy today about television, but it also includes new entertainment options. It's simple, but powerful. And it has three key elements. First, it brings

together traditional TV programming that we're all familiar with along with that rich, full Internet experience and personal content that we all have stored in various different places around our home, and the ability to search for all of that information.

Second, it's interactive. It's an open platform that provides for a range of applications and services for consumers, that are experiences that we can enjoy in a TV kind of environment. It allows us to get access to information about travel, maybe recipes, online games. And allows us to even access TV show libraries as well.

And then third, it's intuitive. It gives us a high-quality viewing experience with intuitive interfaces and controls. And we have the ability to kind of navigate through all of this information, and it allows us that kind of virtually unlimited access to Internet applications as well.

And we're going to find that we'll see some new input devices. Not only just the typical remote, but we expect that there will be voice-driven kind of access technologies, as well as gesture controls. Something like what you saw yesterday in Dadi's keynote.

So the era of smart TV is here. In the coming months, you'll be able to go out and get your own, and there will be lots of different new devices that will give you that capability. There will be set-top boxes. There will be companion boxes that you'll be able to add to

your system. Blu-ray players. And even that new TV that you've been waiting to get anyway, you can now get it with smart TV capabilities.

Yesterday, we saw examples of the Sony Internet TV and the Logitech Review. But I'm also excited to announce that D-Link and Boxee have launched their new product called Boxee Box here at IDF this week. So if you haven't had a chance already, go down to the second floor, take a look at some of these devices and others that are on display down in the pavilion.

And of course all of these devices that I just described are running on the Atom processor. So from new categories of devices from the CE OEMs to new Internet applications from content and service providers, this smart TV ecosystem is really just beginning. And of course when we talk about key players and leaders in the ecosystem, Microsoft always comes to mind, of course. And so I want to welcome onstage Barb Edson. She's a senior director of marketing in the Windows Embedded division at Microsoft. Barb, welcome.

Barb Edson: Thanks, Doug. It's great to be here.

Doug Davis: Well thanks for being here.

Barb Edson: Thank you.

Doug Davis: We're obviously pretty excited about the smart TV experience. Tell us a little bit about Microsoft's view of this.

Barb Edson: Well, Doug, we're very excited to be here today to talk about our initiatives in the TV and connected media device space. In fact, this is just one of many areas across the broad Windows Embedded marketplace where Microsoft and Intel have a deep collaboration. The TV and connected media device space is of particular interest to the Windows Embedded group at Microsoft, because it really represents not only the fastest, but the largest potential market opportunity across our two companies and customers alike.

Doug Davis: Great. So now what I understand you've done is you've taken Windows Embedded Standard 7 and Media Center, and you've ported them to an Atom-based system. Tell us a little bit about why you selected that platform.

Barb Edson: We've actually been committed to this platform since we released Media Center in 2002. But up until now it was only available on a PC, and really to get the full HD experience, you needed a high-end PC, and that's very expensive. At the same time, our OEM customers had been asking us for a platform that would allow them to create devices that directly connect to a TV, but provide all the great features of Media Center. And of course, Doug, at a competitive price point.

Doug Davis: Great. So tell us a little bit more about Windows Embedded Standard 7.

Barb Edson: So Windows Embedded Standard 7 is a toolkit that enables manufacturers to create rich and uniquely branded experiences for devices like set-top boxes, DVRs, and connected televisions. And just recently, we launched a new pricing model that will allow us to specifically address this marketplace.

Doug Davis: So, now, Intel is providing the CE4100 processor as well, which provides not only an Intel architecture core with Atom, but also dedicated hardware for media and audio kinds of capabilities, to deliver that full, high-definition experience. Tell us a little bit how you've taken advantage of that.

Barb Edson: Well, Doug, we think that's awesome because having an optimized hardware and software solution provides our OEMs with a competitive advantage. And what you've done with the Atom system-on-chip design is really provide some unique features for these types of connected devices. You're providing outstanding performance for multimedia applications, and you're allowing them to create devices that allow them to seamlessly switch between the Internet and TV sources.

Doug Davis: So, now, I understand you've brought some cool new devices with you. Can you share them with us?

Barb Edson: Absolutely. We've got a few prototypes here from our great partners Acer and Asus. Now, these are just prototypes. They won't be shipping until 2011, but we're very excited today to show you these companion boxes that will allow you to take the Media Center experience and have it on a TV.

Doug Davis: Okay. Can you show us an example of your platform running?

Barb Edson: I would love to show you an example of our platform running. So let's go ahead and take a look. The first thing you're going to notice, Doug, is that the start menu is uniquely different than what you're used to seeing on your home PC, because I know you're using Media Center. So, again, we mentioned that we allow OEMs to do uniquely branded experiences.

So here we are at the start menu, which is where the user is going to launch all of their media viewing experiences. So the first thing we're going to do is launch a TV broadcast. So one of your favorite shows, I'm sure. The Good Wife.

Doug Davis: Yeah. Uh huh.

Barb Edson: That's why I picked it.

Doug Davis: Thank you.

Barb Edson: Spending your Friday nights watching that. So we'll go ahead and launch that. So one of the key things to note here is we provide to our OEM partners broadcast TV support out of the box across many countries, which allows them to get to market – a faster time to market worldwide.

So now to show off all of the great DVR capabilities, we've jumped into the guide. The first thing you're going to notice is that we have both Internet content and broadcast TV content. At Microsoft, we like to call this a hybrid model, because although we do know that the Internet media consumption is taking off, the reality is that all of us are going to be watching broadcast TV for years to come. So having that hybrid experience for our OEM customers is a great advantage for them.

The other thing you're going to notice is there are a lot of different content providers being shown here. Microsoft has strategic partners with companies like PBS, Fox Sports, CBS, just to name a few here in the U.S. Of course in Europe, we have Canal Plus, BSkyB. And let's go ahead and dig into one of the rich content providers, Netflix.

Doug Davis: Okay, great.

Barb Edson: So you immediately get to see – so we'll jump into Netflix here, and it's going to go ahead and launch. And as many of you know, Netflix is a broad category of selecting different movies. You can

go in and manage your instant queue for what you want to watch Saturday night with the family. So again, great content.

Rich – okay. So planet – these must be your queues, because I definitely haven't watched those shows. But again, just a great, rich experience brings Netflix to your big-screen TV through the connected device.

So the last thing I want to talk about, Doug, is my favorite feature of having a connected device attached to your TV. And that's the ability to take all of this personal content that all of us have collected – I heard you say you had a 17-year-old daughter.

Doug Davis: Yeah.

Barb Edson: I bet you have a ton of videos, photos just collected on your PCs. And grandma and grandpa come over, you all huddle around the PC – get across the little monitor. Wouldn't it be great to see your photos, watch your home movies, in the comfort of your own living room and to really see it on the big screen?

And so we're providing people the ability to take all their content across their home PC – and here you can see some of my content. You see what I spend my personal time doing – watching a lot of children's football. But again, the content is easily pulled over the home network from PCs using DLNA or Windows HomeGroup.

Again, just a seamless experience. You can kick back, relax, in your living room, watch it on the big screen.

Doug Davis: So, now, also, knowing Microsoft, you guys have some, I'm sure, really creative, cool new things you're adding as well. What can you share with us quietly, today?

Barb Edson: I'd love to, Doug. You'd be the one I'd want to share it with, but I can't share anything else today. As we mentioned, won't be shipping until 2011, but we're very excited to give you a sneak peek today.

Doug Davis: Okay. Hey, thanks, Barb. Thanks for being with us.

Barb Edson: Thank you.

Doug Davis: In 2008, we launched our first system-on-chip device for consumer electronics applications. And last year, we launched our first Atom-based device in an SOC called the CE4100 that you heard Barb and I talking a little bit about.

Today, we're announcing the next-generation device in this product family. All have common features. All run with Intel architecture and therefore a common software developers kit, and the ability for developers then to create applications that they know are going to scale from generation to generation of devices.

And from a consumer electronics device standpoint, of course this needs to be a system-on-chip type of design. Single chip that includes all the processing performance along with the audio and video components necessary to run these rich media kinds of applications.

So I want to show you, then, the new devices and new Internet-connected services that we can create for TV. I'd like to introduce this newest member of the CE – the consumer electronics – family. This is formerly codenamed Groveland, the Intel Atom Processor CE4200.

So today, here at IDF, we're also happy to announce that four OEMs are announcing new products as well. ADB, Samsung, Sagemcom, and Technicolor are announcing that they're building new set-top boxes based on this device. And this 4200 processor is very well suited for the cable industry.

For example, it delivers an increased transport stream input that supports home gateways and allows you to distribute media content throughout the home. You'll be able to tune to eight different channels and then consume that content across different devices. You can see it on a TV, a laptop, a smartphone, expanding your entertainment options and allowing you to have the content that you want, when and where you want to consume it.

But the 4200 adds a couple other features that are really important. It includes an H.264 encoder. And that allows the ability to do transcoding, to move and synchronize information across different devices. It also has integrated power management. So even as we add new power-consuming features to these kinds of devices, we're able to do so in a part that consumes less energy. So it allows the consumer electronics OEMs to meet all of the regulatory requirements around energy consumption, while delivering these great new CE devices over the next few generations.

So this is kind of a quick snapshot, a quick run by of many of the things that we have going on in the consumer electronics space.

So what's the next chapter? Where should we go next with the story? Well, I don't have to tell you that there are a lot of things happening in the mobile space. Mobile devices are going through an incredible transformation, as we all know very well. But Atom is in the middle of it. So let's go dig into that area next.

Mobile devices are the most personal compute of all. And Atom can deliver transformational capabilities into these kinds of applications. We can support applications that range in size from pocketable to portable. User experiences can be short, kind of frequent little update sessions on your handheld device, for those of you who use Twitter, or tabletop usages for something that's a little bit more involved.

Functionality can go from basic to immersive, visual Internet experiences. Now with Atom, we reached new levels of power and cost and form factor. We reduced average power by 90 percent. We reduced size by 85 percent, and we reduced cost by 65 percent compared to the Merom architecture. And then, earlier this year, we launched the 45-nanometer Z6 series, which takes this to the next level.

So we took that plateau, and we increased the capabilities of the product. We drove a 10X reduction in thermal power and over a 50X reduction in platform idle power. Now, this product brings the rich Internet experience and multimedia capabilities into a phone type of platform, and it shows up in a device like this Ava phone that I have here.

These are the kinds of applications that this 45-nanometer Atom Z6 series processor can support today. So we're on track. We're executing, and with Medfield at 32 nanometers, it only gets better. We're going to drive higher levels of integration, we'll reduce board size, we'll reduce part count, and we'll reduce power. So stay tuned for more there.

So let's keep going on our journey here. Let's talk a little bit about tablets next. And you've been hearing a lot about tablets over the last couple of days. Well, the tablet market is expected to grow to over 20 million units next year alone. And we're seeing great design win momentum.

I have three great examples on stage, showing kind of the range of possibilities here. We have up here examples like the ExoPC that's running Windows. Great user interface on this device. We have MeeGo devices, like Renee just showed with the WeTab device. And Android devices like this Cisco Cius system. And you saw a little bit in Paul's keynote video yesterday about this one. It's an enterprise, ultra-portable collaboration tablet for access to business applications and really will create, again, new usage models in the business environment.

Now as I mentioned earlier, if you'll recall, I talked about port of choice. What a great example, right? So building off the Z6 series, I want to share a little bit more with you. A little more insight into the next generation Atom for this space. And I want to show you a wafer of Oak Trail. Now, Oak Trail is targeted at mobile devices like netbooks and tablets.

So we're really excited about this new SOC. We really think it's going to be a winner. And it takes the same kind of breakthrough platform, power consumption, the kind of performance that we've seen with the Z series and brings these rich multimedia capabilities into the tablet space. It supports operating systems like MeeGo, Android, and other OSs, as I've talked about earlier.

And Intel and Microsoft are collaborating to create a rich and compelling consumer experience for this platform, for this Oak

Trail device, for netbooks and tablets running Windows 7. So we're really excited about that as well.

So we're already seeing strong momentum in the ecosystem supporting these new platforms. We have partnerships with memory companies, communications companies, the power device companies that are building power components as well, as well as working with OEMs and ODMs to get ready for this new device. But we thought we should show you even a little bit more. So we have two devices that are running Oak Trail silicon today, and Cam's going to come out and give us a quick look at those.

Cam: Great, thanks for having me, Doug.

Doug Davis: You bet.

Cam: So what I'm showing here today is the first public showing of Oak Trail. What we're doing here, we're just showing an HD 1080p clip. First ever showing, incredible performance that we're seeing on this Oak Trail platform.

Doug Davis: Yeah. That's awesome. Very exciting.

Cam: But it's not only about the performance, Doug. It's about form factors. And if I can get you to hold this. It's about form factors that Oak Trail is actually going to be able to enable. And so what I have

here is a device from a company out of Korea called Ocosmos, and it's – all right, thank you. So here we have it working.

Doug Davis: Two of them.

Cam: So this is a five-inch gaming tablet. This will actually be the premier Windows-based gaming system that will be out in February. Pretty excited about that.

Doug Davis: Two great examples. Oak Trail running, first time, right?

Cam: Yes, absolutely.

Doug Davis: Fantastic.

Cam: Thank you very much.

Doug Davis: I'll give this back to you.

Cam: Thanks.

Doug Davis: Thanks, Cam. Yeah, pretty exciting. So, you know, we have these ultra-sleek, ultra-dense form factors for tablets and handheld kind of devices. And, of course, you know one of the biggest phenomena that we've seen in recent history, and kind of the next chapter in my story here, is netbooks. So let's talk a little bit about them.

So netbooks are really not about just affordability. It's really becoming much more about desirability. So two years after the introduction of netbooks, the innovation in this space is really just getting started. So I want to talk about three important attributes associated with netbooks that we think will continue to drive the innovation.

The first of those is customization. And we have a great example up here. This is a second-generation Classmate device, and what's great about this, when you think about schoolchildren carrying this around, you can drop it from 70 centimeters, it's water resistant, and less than $200.

We're also going to see sleek new form factors. Now, some of you may have seen Mooly Eden's speech at Computex in June, where he talked about this Canoe Lake proof of concept that we've been working on. And, you know, it's a pretty incredible device. I've gotten to carry it around a little bit. It's incredibly thin, right? And Mooly, of course, pulled not one but two of these devices out of the now-famous manila envelope. So a very exciting kind of product.

And then, of course, the third area is dual-core performance. In August, we launched the Intel Atom n550 dual-core processor. So two cores, four threads available, and it really drives a much more responsive web browsing experience, much greater enhanced video playback, and great battery life for these kinds of applications. And we have some examples up here, a system from HP, one from

Samsung, and an Eee PC device here as well. So lots of exciting new things happening around this dual core platform.

But hey, let's keep exploring some of the new places and imagine some of the things that are going to be coming. The innovation happening around the magic of Intel architecture and Atom is really starting to spur some creativity and some fun, imaginative kind of devices. And you development engineers, I think, are really just getting going. But I want to show you something that's really, truly innovative today. So I want to welcome one of our partners, Dave Zavelson, a member of the ultra-mobile products team at Dell, to come out and talk to us a little bit.

Dave Zavelson: Hey, Doug.

Doug Davis: Hey Dave, thanks for being here.

Dave Zavelson: Thank you.

Doug Davis: So tell us a little bit about what you're doing.

Dave Zavelson: Yeah, I'm delighted to be here today. I'd like to start off by offering some kudos to Intel. The Atom processor has launched one of the most innovative waves in mobile computing. It's really enabled our industry to develop lighter, smaller, more compact devices with great battery life. And what I've got with me here today is an example of one of those types of devices.

Doug Davis: I heard you were going to give us a little sneak peek, so we're excited to see this.

Dave Zavelson: So what I have here today is a sneak peek at the world's most powerful 10-inch Windows tablet. It's powered by Windows 7 Premium, and it's running on an Intel dual-core Atom processor.

Doug Davis: Okay, maybe show us a bit about what it can do.

Dave Zavelson: Yeah, so tablets are great for entertainment. I'm going to move it over here to the dock, so that we can get a good camera shot of it, and just to show you a little bit of what this device can do. We'll start by looking at this app that we have here that will let you go through music. And you can stream music from anywhere around the world. So let me go find a station from here in my hometown of Austin.

Doug Davis: So we're going to listen to a little country music, I presume?

Dave Zavelson: We'll see what we can find here, let's see.

Doug Davis: Okay, so now this is wirelessly connected, right?

Dave Zavelson: Wirelessly connected, and wireless is great for a device like this, where you want to be connected, always on the go. And WiMAX actually is a great example of a technology that we will be

supporting in a device like this, with the high bandwidth needed for a rich entertainment experience. It looks like we're having some troubles with the streaming here, but let's just move on.

So another thing you can do with this is check out your photos, so keep in touch with friends and family. So we've got this connected to Facebook. So I've got all my Facebook friends here, and then all the most recent photos will appear here. And then I've got a long flight home, so let's go check out what movies I've got queued up for my flight. So we've got some movies that I previously downloaded here to the device, and we can play here. This is a high-definition video of the movie UP, which my daughter is just in love with right now. So it's been capturing my --

Doug Davis: So this is really picking up all the capabilities and performance from a dual-core processor like the N550, then?

Dave Zavelson: Yeah, the dual-core processor is perfect for a device like this, because it gives you both the performance and the battery life that you need for the rich entertainment experience that you get in a tablet like this.

Doug Davis: Okay.

Dave Zavelson: So your movies and photos and music are great, but sometimes you just want to kick back and kill a few zombies, so let me go over here to this game that's been pretty addicting to me recently.

Doug Davis: Seems to be a common theme.

Dave Zavelson: So some of you guys may recognize this, the Plants vs. Zombies, on some of the other tablets that are out there. It's a pretty popular game. It really does a good job of showing off touch and what you can do in terms of entertainment on a device like this. So let me show you a bit of what we've got going here.

Doug Davis: Hey, Dave, that's great. Let's get back to work. I know you like this. So great tablet kind of experience, but there are also times that you have to do work, and maybe that's where tablets are a little bit limited as well, though, right?

Dave Zavelson: You brought up a key point. Tablets are great for entertainment, but they aren't exactly conducive to productivity. So for that, they're missing one key feature, and that's a keyboard.

Doug Davis: Right.

Dave Zavelson: So allow me to introduce you to the dual-personality Dell Inspiron Duo.

Doug Davis: That's great.

Dave Zavelson: This is a 10-inch tablet with a keyboard, powered by Windows 7 Premium, and running on a dual-core Atom processor. It's great for

providing the productivity that you need to have, as well as allowing you kick back and relax and enjoy entertainment on your own terms. So actually, this is a good time for me to go ahead and send an email to my boss and let him know that I'm staying busy here.

Doug Davis: So now he knows you're working and not just playing games, then, right?

Dave Zavelson: Right.

Doug Davis: So what does a platform like this then mean, Dave, for developers that we have here in our audience with us this morning?

Dave Zavelson: Yeah, that's a great point. I'm hoping that a lot of you out there today as developers are looking at a device like this and already coming up with some cool new ideas for apps that you can write for a device like this. And I know you're going to be wanting to get a lot more detail on its capabilities, so rest assured, we will be providing that in the near future, so please stay tuned.

Doug Davis: So when will this Dell Inspiron Duo be available in the market? How soon can we get it?

Dave Zavelson: It'll be available later this year.

Doug Davis: Okay, great. Hey, so thanks, Dave, for coming out, giving us a sneak peek at this really exciting device.

Dave Zavelson: Thank you very much.

Doug Davis: All right, take care. So one more chapter in our story. There's a huge, diverse world that I want to go to next, and it's broadly referred to as the embedded market segment. Now, there are literally dozens of segments actually associated with embedded applications, and those segments represent hundreds of different applications.

The number one challenge for developers in this space is how to support all of the computing performance and application-specific hardware requirements for all these vast types of systems, and the I/O capabilities that are necessary in each, while still delivering the kind of capability from a platform perspective that's necessary for the software developers out there.

And we describe this dilemma as the need to master the fragmentation in embedded market segments. So when you look across a broad range of applications, maybe things like cars and printers, IP cameras, digital signs – I can keep going – these applications have to support different I/O capabilities. So if you're going to be in a car, you've got to support a MOS bus. If you're going to be in industrial automation, you have to support an

interface called EtherCAT. You want to be in communications applications, things like TDM may still be necessary.

So the challenge is how do you support all these capabilities, deliver the compatibility of Intel architecture, and keep that generation-to-generation portability moving, and keep your software development costs low over the range of products that you're developing?

Well, at the Beijing Intel Developer's Forum back in April, we made Intel history by introducing the first Atom-based system-on-chip device for embedded applications with the ability to master the fragmentation. So let's take a brief look at Tunnel Creek and how we repartitioned this system-on-chip architecture to help us solve this dilemma.

So earlier I mentioned that we're launching the E-series of products for the Atom processor family specifically for embedded applications. And today, it's my pleasure to launch the first ever SOC that's Atom-based for these kinds of embedded market segments. Formerly codenamed Tunnel Creek, this is the Intel processor E600.

So as you saw in the video, this E600 processor delivers incredible flexibility by integrating PCI Express on dye and enabling developers to be able to handle all the different diversity of these applications. In addition to PCI Express, we also integrated some

other features, as well. We've included video encode in addition to decode, and we've also integrated the memory control hub as well, so that we can improve the memory bandwidth access in the device.

And these resulted in some pretty substantial capabilities. It increased our 2D and 3D graphics performance by 50 percent, compared to the previous Atom processors we were working with, and lowered the board cost and reduced the footprint for these kinds of applications.

Today, we're announcing eight package-compatible SKUs that range from commercial temp to extended temp devices. And the E600 can be supported by a whole suite of I/O components through that PCI Express interface. IOHs, FPGAs, A6, and even discrete components.

We have four examples up here of commercial IOHs that are also launching today. We have an IVI device from STMicroelectronics. We have another IVI device from Oki Semiconductor. We have a Realtek device for media phones. And then fourthly, we have an Intel platform control hub called the EG-20t for just general purpose embedded kind of applications.

So I want to give you an example of one of the exciting market segments where this E600 processor is going to be going. I'd like to welcome onstage an industry leader, an integrated solution development for in-car kinds of applications, for auto

manufacturers. Please welcome, Upton Bowden from the electronics group at Visteon. Thanks, Upton, for being with us.

Upton Bowden: Good to be here, Doug.

Doug Davis: So, Upton, thanks for being here with us. I know you brought a development platform with you. Maybe you could tell us a little bit about that and your experience in using Intel Architecture for this system.

Upton Bowden: Yes, so today we've seen many really cool, new, exciting connected features in the CE space. However, in the future, most vehicles will also be connected nodes on the network. Visteon's working to provide automotive solutions that offer an intelligent in-vehicle experience.

Doug Davis: So tell us a little bit, why did you select the E600 processor for this application?

Upton Bowden: Well, we chose it for this system because it delivers rich multimedia applications and real-time connected services. The hardware integration makes it easier to design and build a system for IVI and offers more customized solutions for our customers. Developed in collaboration with Pelagicore, our system is running on an open source operating system and features acute-based HMI.

So let me explain the demo that Caitlin's demonstrating behind us. Obviously we couldn't bring a car out on the stage, so if you picture the cockpit of a vehicle, the large center screen would be where your radio and climate controls typically exist. The side screen to the left could either be a digital instrument cluster or conversely could be, in this case, shown as a rear seat entertainment screen.

So you might have noticed that the displays are user-configurable. And what that means is that the controls basically change depending upon the driving mode and the content. So another feature is personalization, and the nice thing there is that the driver or passenger can change buttons sizes, colors, fonts, skins, themes, et cetera, based on their personal preferences.

So what she's showing is essentially advanced 3D gaming on the screen on the left and in the center computationally intense navigation route finding. The nice thing is we can also control the rear seat information with any portable wireless device, so what that does is it allows passengers to manage multimedia content without distracting the driver.

Doug Davis: So Upton, it's really exciting to see these kinds of applications running on this platform. What can you do with it when you connect it to the Internet?

Upton Bowden: So very much like smart phones, users can basically configure this system by installing widgets and applications and other things to

personalize their driving experience. What we're looking at in the center screen is a weather widget that basically provides location-based weather for where your current location is or wherever you might be heading to.

Doug Davis: Okay.

Upton Bowden: Another application is – this is a traffic application and basically what it does is it shows a static traffic camera image for where you might be going. So in addition to aggregated traffic data, you now can see a physical image of the road ahead or where you might be heading to and further help you avoid traffic. You know, the possibilities for connected in-vehicle are really exciting for both the consumer and the development community.

Doug Davis: So, Upton, these are great for, you know, drivers, those kinds of applications, traffic, weather, those kinds of things. What about using connectivity for multimedia kinds of applications as well?

Upton Bowden: Great question. As far as -- Internet radio is a really fun application when you're on the move. Say you're listening to Internet radio on your portable device, and you get into the vehicle. The audio infotainment system will basically transfer connectivity from the portable device to the onboard platform and begin streaming music over the vehicle speakers. So essentially streaming content from -- audio/video content from the cloud offers virtually unlimited multimedia experience to passengers on a trip.

Doug Davis: So it kind of seems like the mobile CE environment, that world is starting to merge into this automotive space as well.

Upton Bowden: Yeah. Absolutely, and I haven't even touched on the ability of the system to allow passengers to, say, browse the Internet or, for the driver, real-time location-based data and apps can basically help you look for restaurants, find the lowest gas prices, or stay connected with friends through social networking. Basically with the power of Intel's next generation Atom processor, audio infotainment systems will be able to run powerful onboard and offboard applications, connect to the Internet for car-to-car, car-to-infrastructure features and applications. Basically, it's unlimited.

Doug Davis: Okay. So thanks for joining us. Thanks for sharing this with us. This is very exciting.

Upton Bowden: Appreciate it.

Doug Davis: Appreciate you coming out.

Upton Bowden: Thanks a lot.

Doug Davis: So what's next? We've talked about this new Atom E600 series processor, and we start asking ourselves the question of how do we make Atom even better? How do we make it more flexible for

customers to design applications with Atom? Where would we go from here?

So we asked some simple questions to our customers. We asked them what if you had a new level of flexibility? What if you could support multiple I/O SKUs with one footprint? What if we could enable you to shorten that time from definition to implementation of new features? What if we could give you the capability to put your specific differentiating features into this kind of platform? What would we need to do to take Atom to the next level?

Well we started with the E600 series processor, taking that best-in-class density performance at 45 nanometers. We kept the ultra-low power, low-cost, all the flexibility. We kept the goodness that Atom delivers with the IA software community. And we added a field programmable gate array into one chip. And to do this, we worked with a market leader, Altera, a pioneer in the world of programmable logic solutions. And the result is an exciting blend of world-class performance and programmability.

So I'm giving you a sneak peek here today of a new product. It's in the making -- it's called Stellarton -- to help us deliver on some of those capabilities that we hear from customers that they'd love to have.

So it's Intel's first ever configurable Atom processor, and it's coming in the first half of 2011. So you've gotten a glimpse of how

we deliver the E600 series to help developers master the fragmentation, and we're just getting started. So stay tuned for more details about this capability over the next few months.

So I've talked about three new Atom-based SOC devices. We continue to deliver on Moore's Law, and this includes Atom as well. We're starting in 2011 with a whole new lineup of products based on the 32 nanometer Saltwell core. We'll deliver even lower power, higher performance, and richer integration in these kinds of platforms.

So I started out today talking to you a little bit about children's storybooks, and I hope I sparked your imagination, and I want you to continue on that journey with us.

This has really been a whirlwind journey. We've seen many new segments. We've seen new applications. We've seen three new products in just a very short period of time here. I want us all to continue to work together to develop the exciting new products that will be created in this compute continuum. Just imagine what we can do together. Thank you very much.

Female Voice: Ladies and gentlemen, technical sessions will begin in 20 minutes. Press and analysts, we invite you onstage --

[End of recorded material.]