

Intel IDF – 3.7.06 MacDonald Keynote Presentations

Female Voice: Ladies and gentlemen: Please welcome Don MacDonald.

[Applause]

Don MacDonald: Good afternoon. It's great to be back here at IDF. Particularly because I know that everyone in this audience has a passion for technology, just like we do at Intel. The reason I'm thrilled is because we've got some great technologies we'd like to share with you covering a variety of Viiv[-based] platforms, some dual core performance in gaming, new networking technologies and a bunch of more.

So I think the opportunity here is for everyone here as developers to see the opportunity for what we're delivering on the Intel-based platforms that, in turn, we think, will just grow the opportunities for each and every one of your business. So it should be a fun-filled 30 minutes.

It's important that we actually keep paying attention to the needs of the consumer. If you remember last IDF, we had my Australian counterpart here, [Genevieve Bell], who runs our research in the digital home group, telling how understanding the needs of consumers are really important. That is exactly what the digital home group is all about. In fact, we've identified six what we call human values or six experiences that then drive the development of the technologies [not only] within my group but also those areas that we think are important that we will invest in through Intel Capital or through fellow traveler engagements, with many of the people in this room.

You can call them what you like but those experiences include things like escape, playing a movie, listening to music, maybe planning or reliving a holiday. Things like control, being in control of your technology, managing all those digital devices and services in your home, or togetherness, online virtual communities, access to your technology, things like health and wellness, very important around the world.

But whatever the actual experience is, they all have one thing in common. They have a consistent technical platform built on one set of common technologies. Those technologies on the Intel side, of course, are predicated on the dual-core and multi-core -- you've seen plenty of this today, you'll see a bit more -- on what we call the [Star Ts] and then lots of innovative software making all of those experiences play nicely together.

So what we're trying to do is to create this opportunity and this roadmap for the future. At the end of the day, we ask ourselves, "Well, who wins with this?" The answer, very simply, is the developers with the deepest knowledge of that platform. So that means everyone here in the audience today who are Intel platform developers.

So let's start with what we call escape. That's the entertainment and the music, etc. It's a natural starting point and [Intel®] Viiv [technology] was designed from the ground up as a consumer entertainment platform. At its core, we have silicon dual-core CPUs, we have the Intel chip sets and we have Intel networking silicon. The hardware alone doesn't make a platform. It also has about a million

lines of Intel software code and together that combination delivers a consumer experience that is better than the sum of each individual component. Those things do the high definition audio/video, the quick resume technology and they shape a whole bunch of innovations that run on top of the platform.

So we are really striving to deliver this new compelling entertainment experience. But the Golden Rule, as I said last time, and I'd like to demonstrate on stage today, is that they really have to be incredibly simple to set up. It has to be exquisitely easy to add to new devices. Above all, it has to be incredibly simple to use. So I'd like to give you an example of simple. [Kathy], can you join us on stage? Hey, Kathy.

Kathy:

Hey, Don.

Don MacDonald:

What Kathy is going to do is set up a wireless secure network and she's going to run against the clock. Why don't you get started over there, set the clock running and we'll keep a camera on you so you don't cheat. What Kathy is going to do is she's going to set up a Viiv[-based] PC, she's going to set up a secure wireless network. She's going to add a digital media adaptor. Then lastly, she will actually stream premium content from that Viiv[-based] PC through to the DMA and onto the television display.

So, Kathy, you keep the starter. We've got the camera on you while you work. Just to give you a quick recap on Viiv, we launched [Intel®] Viiv technology at the Consumer Electronics Show and today, customers can choose from over 110 designs in all shapes and sizes,

with choices from both the traditional PC industry, but also the consumer electronic industry. By the end of this year, we'll have more than 250 designs. When you look at some of them (we'll show you a few in a moment), you'll realize that the high performance coupled with the low power has enabled a new breed of industrial design. Together, they deliver this new class of experience, driven, of course, in no small part, by the dual-core performance.

But it delivers a lot more than that. Breakthroughs in the low-power consumption allow Viiv-[based] platforms to basically hold their head up high in the living room in near silence. Now we already have several designs today that have taken advantage of the technology enabled by Viiv [technology], and by the Intel technology, with what we call the Sound of Silence. You can get many of these platforms today from FIC, TCL, ECS, Mitac, BoxOne and a bunch of others. These low-power options deliver truly living-room-quiet performance. They're very attractive PCs, so now we think that Viiv [technology] really does deserve the title of being "living-room friendly."

But you're a cynical bunch, so we thought: "Let's prove it." How quiet and how friendly are these devices? We got our testing labs in Oregon to basically compare a Viiv[-based] PC, with all the features enabled, with a few other devices that typically you have no problem having in your living room. We measured two things. The first thing we measured was the thermals, and the second was the acoustic. We used a thermal imaging camera and, like I said, just typical items that you'd find in your living room. In this case, don't get hung up on the

methodology. There's 20 different ways of doing this. But we actually measured them after an idle time of 15 minutes.

Interestingly, a DVD player sits idle after 15 minutes running at 73 degrees Celsius. To put this in context, we actually went to the Starbucks across the road, and we asked the barista there to measure his Starbucks coffee. That's 77 degrees. We had to do that. There's a legal disclaimer as well on there. [Chuckles.] Barista measured the performance. [Laughter.] That just shows you that a DVD player running in idle in your home living room is running at 70-odd degrees Celsius, the same as a delicious cup of Starbucks coffee. Then we measured the other living room devices that you typically find in there. You can see them from a set-top box, from an entertainment PC or from a game console, and you can see a variety of temperatures going from north down to south. And if you actually look at the Golden Gate, remember that the Golden Gate was the small and very, very gorgeous form factor that we showed on-stage as a concept PC here at the last IDF. The thermals on Golden Gate are actually cooler than a baby's night light, that you have in your baby's room. So when you look at the spectrum of devices on the thermal aspect alone, the technology of high performance and low power through the technologies and chipsets of the Viiv[-based] platforms can absolutely hold its head up high.

But the challenge, then, is that when you're cooling electronic equipment, often that means noisy fans. In fact, it can be exacerbated when you put this through into smaller, very cool form factors. Typically the frequency of the noise and the density of the air, or the

air flow going through, can actually make it very uncomfortable. So we plotted the acoustics as well. Again, don't get hung up on the measurements, but we actually measured the acoustic pressure in a chamber with a dome of microphones at one meter.

What you can see, basically, is that in general, the acoustic levels are inversely proportional to the idle temperatures, with two exceptions. Those two are both Viiv[-based] PC platforms. The first, as you can see, is the Viiv[-based] PC idle temperature. As you can see, the entertainment PC – this is the [BoxOne.] This is actually passively cooled. (We have one on-stage just over there, that we'll show you in a second.) So clearly, that one is running at essentially ambient temperature, and the noise level of that product is very, very cool. The second one is the Golden Gate, which has incredibly low thermals and very, very reasonable acoustics. You compare that with a game console, [it] has lower idle temperature, but is very, very loud. And so, in general, as developers, you can absolutely take advantage of the technology provided in the Viiv[-based] platforms, whether they go in the bedroom, in the den, in the office, in the kitchen, or, indeed, in the living room. They've got fabulous thermals and fabulous acoustics. The technology is there to enable you to create these cool designs, and we invite you to take advantage of the work that our architects and designers have invested in the product.

Now we'll continue to expand Viiv [technology] connectivity and Viiv [technology] capabilities, and very soon you'll be able to remote content and applications with even further-improved networking features. With those new usage models, home networking becomes

even more important. Now the good news is, there's even more choice for consumers as they decide what the right networking choice is for their home. In general, the rule from Intel is that we're very agnostic and, in fact, we support hybrid versions of the networking protocols in and around your home. So Sean actually showed you a few moments ago 802.11N and some other technologies and we simply don't want to get lost in an alphabet soup of technologies or network transports.

On the other hand, we don't believe that you can have a one-size fits all depending on where you live. We also don't want to disappoint by selling a promise and not fulfilling it. So we're advocating this hybrid – or this agnostic – networking approach. We think we can assure a strong IP backbone with all the flexibility of wireless. For example, in Shawn's demo, the [H2.11] was something like four to eight X [4X-8X], the throughput of Wi-Fi, which means that with that you can stream multiple high definition streams. Now you could use [802.11] across your entire house as the backbone as well as the local transport. Or you could use it in connection with a wired backbone. If you're talking about wired, you can look at Ethernet, of course. If you do, that's fabulous. But not everyone has Ethernet and not everyone wants to pull wires.

So in that case, we would recommend HomePlug AV. It's simple, it's easy. The wires are already there through your electrical sockets and it's taking off. Worldwide, there have already been more than 4.5 million HomePlug shipments around the world. It by far ships more HomePlug than all the other PLC protocols combined. In fact, on Kathy's protocol there, she is actually – You have not finished.

Kathy: I'm just waiting for you.

Don MacDonald: Okay, that's a new record. We'll come on to you in a second. You're not supposed to be finished yet. Okay, but on Kathy's network, she's actually using (in some parts of the network) the HomePlug AV. So to see the full benefits of HomePlug, I'd invite you to visit both the [Interlon] and the connection booths where they've got high-definition streams streaming over there. It really is superb. It really is consumer-friendly and it's with us today.

Now, as we begin to look at some of the devices of bridging wired to wireless networks – we have a couple of devices here – in this case, this is a device from Interlon and [WizAir] and what it does is bridges HomePlug and ends it into this box which then gives you an ultra wideband room connectivity. I'll show you some ultra wideband and system applications in a second. This expands the choice for networking, making it affordable and simple to connect your wired and your wireless protocols if you decide not to just use 802.11, for example. When it comes to the home and home networks, consumers need to have simple choices to adapt to their home. You can't make people adapt to your technology. So we think the hybrid approach offers choice.

When you actually have ultra wideband, you can look at this device here from Seagate. When ultra wideband combines with [USB, it also] offers more options, so in this particular case, this is an example of a PC peripheral based on wireless USB. It's a device from Seagate. It's

gorgeous – very small. It basically is a wireless USB hard disk drive that makes it very simple to do the backup that you need for your memories or those things that are important to you. It makes it easier and simpler to move around.

All this technology gives consumers more choice and more flexibility. What I want to do now is move over to Kathy. It looks like everything is up and running. What we have here is a non-Viiv[-based] PC and here we have a Viiv[-based] PC. Just to remind you, it looks like it took Kathy three minutes and 51 seconds to set up a network using Intel® Viiv™ technology. Just to recap what we've actually done here from scratch...We have set up a Viiv[-based] PC. We have set up a secure wireless network. We have set up a digital media adaptor that contains the Viiv [technology] software from the host stack. And you've now actually connected to a service and you're able to stream premium content. Is that correct?

Kathy: That's absolutely correct.

Don MacDonald: And you didn't use a keyboard?

Kathy: All I used was my remote.

Don MacDonald: We often get the question about what value Viiv [technology] brings to consumers. I'd like to show you a couple of things that are just small details, but this is the bar that the consumer has set for all of you as developers to a consumer audience. For example, you are obviously

able to get some premium content, but what about the kids soccer match?

Kathy: Right. We all know people love their personal content. So let's just have some dueling screens here. I have some basketball content. You have that same basketball content.

Male Voice: This is a DVAVI file...

Kathy: DVAVI. I went out and shot it of my son's basketball game. Okay, you go, I go.

Don MacDonald: Just to jump to the chase on here, the problem is that the file is not supported – not all of the formats are supported on generic systems. With Viiv [technology], it doesn't change the base file, but it says, “I know because I’m Viiv [technology]-verified. I know that the file is DVAVI, I know my screen needs MPEG2.” So as it streams from the host PC, the Viiv[-baesd] PC, to the screen, it converts it into MPEG2 automatically without any user intervention. On this system the file simply says file format. You can't have consumers having file format errors. Let me just turn this one off. The one thing we have is instant on/off. So do you want to show us what your system can do with instant on/off?

Kathy: My system on/off – my system goes off – I hit the button, it goes off. But check out my streaming content. It's still playing. What about you?

Don MacDonald: Hang on. I'm still trying to turn off my PC here.

Kathy: Yeah, you might want to come this way a little bit.

Don MacDonald: No, actually. This is not part of the demonstration. This should be coming off.

Kathy: Need some help?

Don MacDonald: What can I do? Just turn this one off here?

Kathy: Yeah, go right there.

Don MacDonald: Okay. Okay, it goes into standby mode. The problem we have now is that, essentially, the way Viiv [technology] has been architected is that even though the PC is off, it's still hosting a great deal of content. It still has access to a great deal of content. So it's been designed – again, remember in your mind that the Viiv[-based] PC is in the den, this television here with the DMA may be in the living room. So even though the Viiv[-based] PC is off, it's still capable for this DMA to stream content from there. In this case the PC is off, and when I try and find content -- this is a different error – it can no longer find it. The server is no longer on the network. So the old PC approach of just throwing chips into the marketplace does not work. You have to have these kinds of devices, so the error message will come up. Unable to open file because, to all intents and purposes, this PC is not on the network. Thanks, Kathy.

Kathy: Thanks, Don.

Don MacDonald: Three minutes, 50 seconds for setting up a secure network, and there was no need for a remote control. All of this was done. So when you begin to look at the benefits of Viiv technology versus non-Intel or non-Viiv [technology], you begin to see the simplified network setup. Ninety-dollar charge for a no fault found for retailers for your products, which may be complicated to set up and therefore generate a return back to retail. This takes out the frustration, it reduces the cost. The easier device setup – when you actually go through this, you enter a four-digit PIN, and that then pulls across all of the web keys and the SSIDs and so on that you need. You don't need to enter them. You don't need a keyboard to do this. But it's so simple and it's so secure. The transcoding of approximately 20 formats – for all the different formats that you might come across. And then the streaming of content is very simple. It's very, very simple for the instant on/off, and it's very practical.

So those are just a couple of the things. The other thing is if you're a developer of a service, let's just say for example, Cinequest is the local independent film festival here in the Valley, currently running in San Jose. If you go online and buy an Cinequest service, hypothetically, you download it to your Viiv[-based] PC, it automatically promulgates that content and that directory to every DMA that's in your house. So whether you're in the living room or the kitchen or another bedroom, you will find access to that service. On a non-Viiv [-based]PC, you have to go in, click on the media server, assuming you know what a media server is, find your file for Cinequest or Movielink or Eros, one by one, and tell it to please join my home network. That's way too

complicated. So Viiv [technology] has got a large number of benefits that make it very, very simple so you, the consumer, can just get on with your enjoying of the content.

And then of course there's the validation and verification of a world of content and services, and we truly have had magnificent progress. The whole point of the Viiv[-based] system is it was designed for a world where you acquire, manage, and enjoy your content on a PC even if you view it on a remote screen. And that world is happening. It really is the beginning of a new entertainment industry. And that has huge repercussions for everyone in the content and services.

So Viiv [technology] is about putting the consumer in control, making the content experience easier, making the device setup easier, and in this case, as we said, Kathy created the network with Intel® Viiv™ technology, a secure network, in less than four minutes. But actually because we're Intel and we like to push ourselves, we know that we can do more. So let's just take a walk into the future.

Imagine in this case – this is a prototype of a PDA. I want to connect my PDA to a secure network, okay? So in the case here it says I'm scanning connect – I can just use this. It's actually going to try to make a pole to the –

Female Voice: Welcome to the Viiv [technology] network setup wizard. A new device is requesting access to your network. To secure link on figure eight, please –

[Chime.]

Female Voice: Thank you.

Don MacDonald: And now this device is now securely connected to my secure network. You gave it permission, you used a [token base]. So let's just have a look.

Female Voice: Congratulations. You have successfully configured the new device to access your network.

Don MacDonald: Okay. So that was simple. We showed you four minutes there. We actually just showed you more like 4, 14 seconds. So what actually happened? Let me just show you what was happening. You had two technologies there under the hood. One of them was called simple config and the other one was called near-field communication. So let's take a look under the hood as to what happened.

On the animation what you're seeing is that the Wi-Fi got into proximity with the access point and said, "Hey, can I join?" So the PDS makes the request to join, the Viiv[-based] platform responds. It hooks up and says, "Hey, I need to have the PIN information or the security information from the PDA," and you can see them talking to each other. Then you simply pass the PDA within a few centimeters of the near field communication reader -- that's the little USB device that is sticking out. In the future, of course, it would be built in. It passes an encryption key. Voila, that PDA is now a secure member of the

network. It really is that simple. So this NFC-enabled token is really the key to your electronic domain.

Ease of use: Ease of use is really a basic consumer need. So the work we've started with the Viiv [technology] today and the work we intend to continue with new technologies like simple config and near field communication will continue to create the new normal as to what consumers will accept as ease of use going forward. It will also create a new opportunity for developers because in a broad consumer market, ease of use will swell the market. We are creating the standards for ease of use and we're delivering on that on the hardware side, obviously, with the appropriate software that we have here.

Ease of use in the home has got many, many dimensions. So with Viiv [technology], we actually have, as we traditionally do, a number of concept PCs. I'd like to draw your attention to the concept PCs we have over here, except they're not concepts. Some of these are in production and shipping now. So the last IDF, we said there was a great deal of passion for Viiv [technology], and now we're beginning to show you some designs. Here is one here from a company called [Capsel] in Sweden. It is actually a ceramic PC. Then underneath it here is one of the systems we showed in the thermal and acoustic measurements. This would take pride of place in any livingroom. It's actually from a German company called [BoxOne]. This is the one that takes advantage of Intel dual-core technology in the whole Viiv [technology] stack. It is passively cooled so there is no fans which means no fan noise. It's beautiful.

This one here is just basically a concept PC that the guys in the labs were mucking around with. It is a companion to a high definition display. It used picture-in-picture to perhaps mess around with things like home automation and security or, perhaps, basically your home control. So it is supposed to make it easier for the consumer experience.

In the industry, there's been a little bit of tension to say who's got the easiest product to devise and who has got the fewest buttons on a remote? So we saw some of the devices have got 60 buttons, 40 buttons, et cetera. We actually saw Steve and Apple stand up and have their six-button control. One of the members of the audience, Charlie, last year said to me, "Okay, if you're so good, Intel, why can't you do something with no buttons? Can you beat six buttons?" So we decided to do just that. So this platform itself is what we call [Sulcreek]. It basically has two tuners, HDMI support, dual hard disk drives with ray backup array, which is obviously increasingly important. Control is very easy, either with the touch pad on the screen or you can use a remote control.

So for example, on the remote control, if you want to get your Sponge Bob or your Family Guy, then what you can do is just simply say, "What time is 'Family Guy' on TV?" Didn't like that one. I'll try again. "What time is 'Family Guy' on TV?" Please work. [Laughter] I'm going to try that one more time. "What time is 'Family Guy' on TV?" I'm sorry, let me do this one more time. "What time is 'Family Guy' on TV?" Yes! [Laughter] [Applause] Hey, it's worth more applause than that, after all the effort.

[Applause]

We actually do have a problem because of the echoes in microphones and excuses, excuses, excuses. We actually found it, so now record “Family Guy”. Yes, that worked the first time. There you go. So that was an example. So with a bit of healthy competition in the industry, you know, how many buttons do you need on a remote? We’ve set the bar for zero buttons on a remote control so we’d like to see that being bettered. For anyone in the industry who would like to take us up on the Viiv [technology] challenge.

In that particular example, doing things like pause or doing things like on/off, you don’t need voice to be able to do that because you’ve got one button that can do it. But what we just did there was basically save ourselves six, seven. We did the search, find, and organize of all the content. And remember in the network with Viiv technology, you may have content from your broadcaster, Sky Television or DirectTV. You may have content on your hard disk of one or multiple of your PCs. And so part of your choices for Family Guy or Sponge Bob or whatever turns you on could be across multiple hard disk drives, for example. And so doing the search, the find, and having the always best connected – I have them, they’re available, I can do it now, or I can go on there and record them. It can save you multiple clicks, multiple screen menus that you get through. And so in that case we saved about seven screens and seven clicks to do what would otherwise be two voice controls on there.

And so the dual-core performance is interesting. It allows you to do the voice control as well as doing all the search and all the find and all the organizing. So as developers this is the kind of thing – and again this is early technology. It's wonderful, but as a developer this is exactly the kind of opportunity that you can do to grow the market. And in fact imagination is only one of the many ways that consumers escape. In that case it's movies. Many people escape by really enjoying multiplayer gaming, so what we'd like to do is to demonstrate some gamers having some fun with a truly immersive environment. And of course that requires a great deal of performance.

The first thing I'd like to do is to show you the performance of products that are shipping today, and you can see on the pedestal there, for example, that's actually the Pentium Processor Extreme Edition from Dell. This particular one uses a quad SLI. The performance on the screen I'm going to show is less than that. And what it's going to do is actually compare itself to our next generation microarchitecture, in this case it's the codename Conroe.

And so it requires a great deal of performance, particularly in fast-moving games like Call of Duty. And so in this particular test sequence – can you set it running please? In this test sequence, it runs the fastest play possible for about one minute. And on your left there is the Intel Pentium Processor edition at 4.1 gigahertz. And on the other side is the next-generation mobile platform based on Conroe. And what you'll see is basically articulating performance based on frames per second. And if we just let this run through, you should actually see the various numbers coming up. It will do an average in a moment.

Sorry for the graphic violence, but there you go. And so what we have on this one is the Conroe system is doing roughly [111] – this is a very early prototype. It's not over-clocked or anything like this. And then in this one, this is the Pentium Processor Extreme Edition, we'll probably come up with something like 90 frames per second, okay? And obviously this one is unoptimized. So this already gives you state-of-the-art gaming today, so that's [available today]. And then Conroe, without begin optimized in any way, shape, or form, or over-clocked, will give you in this case 20 to 25 percent performance. And then we believe it will deliver 30 to 40 percent performance by the time the tweaks have been done.

So what I'd like to do is to say, hey, Pressler is clearly state-of-the-art today. Or Pressler – I'm sorry – Pentium Processor Extreme Edition is state-of-the-art today. Conroe will basically mean game over. This is going to be a new level of performance that gamers are absolutely going to be thrilled with. But there's even more that we can do. And so now what I'd like to do is to give you an example of some secret source from Intel, some features that will take gaming to a whole new level. And what I'd like to do is to invite [Amir and Miradad] on stage please. They're both from United Five, professional online gaming organization.

Male Voice: Hey, Don.

Don MacDonald: Hey, how you doing?

Male Voice: Good.

Male Voice: How you doing?

Don MacDonald: So why don't you decide who's going to play the game? Because it's Intel developer forum, we have to develop some complex algorithms to see who gets the secret source platform.

Male Voice: We're going to do it the old-fashioned way. One, two, three. Yes.

Don MacDonald: Okay. And what I'm going to do is why don't you give us a running commentary as you get online and show us what's happening. The systems themselves, by the way, are both Pentium Processor Extreme Edition systems identically configured. One of them has got the Intel secret source and the other one doesn't.

Male Voice: [Three, two, one.]

Don MacDonald: So what's going on guys?

Male Voice: I'm already halfway loaded.

Male Voice: I'm still waiting.

Male Voice: I just joined my game.

Male Voice: Man, I'm still waiting.

Male Voice: And I am taking off.

Don MacDonald: So this is more death and violence, I take it?

Male Voice: Yes.

Male Voice: I actually finally joined my game.

[Game playing]

Don MacDonald: So Sean's nonvolatile memory is for wusses; ours is for real men who like high-end gaming. What you actually saw there was the ability for the new secret source coupled with the advanced technology from Intel to basically deliver new levels of gaming experience over and above what you would get on top of the leading technology today and then couple with the Conroe platform that will take it to a whole new level. Guys, what'd you think of the technology?

Male Voice: I think the technology is amazing. I think it's going to give gamers a greater competitive edge.

Male Voice: I thought my system was great. The only thing is that his is way more competitive than mine. There's no competition.

Don MacDonald: As a feature for a gaming community, the kind of secret source coupled with the direction we're heading on our CPUs sounds pretty good?

Male Voice: Awesome.

[Applause]

Don MacDonald: What we demonstrated there was some unique technology. It actually had some Intel unique algorithms, some unique drivers coupled with more of the Intel NAND flash memory. The systems themselves, the Pentium Processor Extreme Edition, are available today including the big, bright, beautiful Dell system that you can see over there. Conroe will be later this year and the actual technology – the secret source technology that we demonstrated – stay tuned for when we're going to bring that to market. Our commitment is to continue to innovate to deliver the technology today, tomorrow – including new features that will delight our consumers.

So far, we focused on entertainment in the home; but the entertainment opportunities are actually all around us. So we're exploring new ways to link entertainment experiences outside as well as inside the home. Imagine, you're walking down the street. Cinequest, as I mentioned, is the independent film festival. You actually see a poster for a film that sounds very, very interesting. What you can do – again, this is a prototype – is you can just simple swipe the poster and what this one has done is it's actually downloaded from the poster. It's transmitted the trailer and also the URL for the movie. This one is not from Cinequest, but just use your imagination. What I can do on my film is basically play the movie. And you can just see on there, if I can just get the right screen shot there, is it's playing. So it's playing a trailer. Now, from an e-commerce perspective, wow, I really like this; I'd

actually like to do it. So now what I would do is go home to my Viiv[-based] PC with my cell phone and just simply [ding sound], now connect and, in this case, you can just play. It really is that simple to acquire, manage and enjoy your content on a network [with Viiv technology]. I'll just leave that running for a second.

That's a good example of how different technologies, whether inside, outside or around the home, can come together to make the consumer's life easier and better. For content creators, it helps you get your content more easily to the consumers who want to enjoy it.

That was the same near field communication technology I showed you earlier. Again, it's a prototype. It's running on a cell phone combined with the near field communication running on a Viiv[-based] platform, as we showed earlier. When it actually transferred, it transferred all the rights or all the payment information that you need to do. You just got your movie very simply. That's all the consumer cares about.

In closing, there were some other technologies that we were very interested about and new capabilities. And two of them let me just touch. One of them is the unified display interface that I mentioned last fall and the other one is HD/DVD. With UDI, really a very brief update, we actually launched it. We said we would and we've done that. It basically extends [HDMI] and what's interesting is this is actually a UDI cable. It's a passive cable and it allows the PC to drive both monitors as well as digital televisions. So we're making tremendous progress with what we said we would do in the fall.

The second area is HD/DVD. The next-generation opticals are here. They'll be two HD/DVD players launched this month, in fact, from Toshiba in this case and others. You're already beginning to see improvements in how we connect, ease of use, new generation optical formats and all of this is happening today, which means that there are lots more opportunities for all of us.

I think we've shown tremendous progress from the last fall IDF. Viiv [technology] is in the marketplace and it's already changing the way that we deliver and enjoy entertainment. It's built on standards and as we know, standards grow markets. It's essential we continue on that clip. You've seen some new technologies that are already building ground – NFC, simple config, the Intel secret source that Amir and Miradad were enjoying back there. Sean showed 802.11N. HomePlug AVI, UDI and HD/DVD. All of these things are coming together to form around this consistent Viiv[-based] platform. That means new opportunities abound for all developers on Intel platforms. So everything I've shown you has been designed to deliver an easy, simple to use and compelling experience. But it's not just escape, it's not just entertainment. There are so many other areas that we'll talk and collaborate with you on over this and other Intel developer forums. Health care. Advancement. Education. All those things that we mentioned before. Online communities, et cetera. These are the major values that we have, and these are the experiences that we truly, passionately believe will drive and increase consumer demand. We'll continue talking about these at this and every other IDF.

Remember, all of these have the common threads of the consistent platforms, the dual-core and multi-core, as well as our innovative software. We're getting great collaboration with Microsoft on [MCE,] and you can see the results of our joint efforts on-stage. But what will you do? Do you have ideas on a way to develop better ideas to deliver on the consumer experience? Is wireless home automation your bailiwick, for example? Or a better way to access information? That's what the Intel Developer Forum is all about.

So who wins, as each of these ecosystems develops? It's the developers. It's people like you in this room. So what I'd like to do is to close by thanking you for being here today. I'd like to thank you for sharing the same passion that we have. We just join you to continue working with us to create the new normal for tomorrow's digital home. Thank you very much.

[Applause.]

[Music.]