Now, you've moved in Snapdragon to 64-bit computing.

Previously with Krait-- which was a 32-bit architecture,

so the size of an integer was 32 bits.

So now you've moved to having the size of an integer being 64-bits.

So can you talk about the advantages that users

will see with 64-bit computing?

Or what they're seeing right now, because you offer that right now.

So are there particular applications where they'll really see a boost?

Or is this something that they'll see just generally across everything

that they do with their smartphone?

OK.

So there's three main parts to that 64-bit story.

So Qualcomm is now providing the 64-bit chips.

Google has just now released Android Lollipop, which

is their first 64-bit operating system, and that's not

pushed out to every phone yet.

But then the final component of that are those 64-bit apps.

So not all three pillars are in place right yet.

This is still the very early phases of this 64-bit transition to mobile.

So I don't have any good examples of naming an app that doesn't exist

and seeing X amount of performance gain.

What we are seeing, the performance gains from 64-bit

are more on the synthetic benchmarks.

But synthetic benchmarks don't always represent what the user's doing,

the apps they're using, the usages they're seeing.

So we're at that early stage where I couldn't tell you an exact usage,

but we've seen benefits on everything from floating point and spec

to JavaScript, which helps with some web browsing.

But these are very synthetic use cases.

And we say, synthetic, these are benchmarks that you've

created to test various aspects.

Is that correct?

Yes.

It's some benchmarks we do internally or create internally.

Other ones are industry standards where multiple companies

create these benchmarks.

And yes, when I say synthetic, it's they've

created a custom test that tries to reflect what real world use

cases is or are, but it's not the actual use case itself.

So again, going back to the server example,

SPEC is designed for high end CPUs.

And SPEC 2006 has that weather simulation subtest within it.

But in your smartphone, you load an app that tells you what the weather is now.

You don't care predicting it a month from now.

So it's not necessarily reflective of how a smartphone user or a tablet user

would use their phone.

That's why we're really anxious to see once we

do have that third pillar of the 64-bit ecosystem--

when people start creating these apps-- to see what sort of benefits we'll see.

We've been talking about 64-bit as a way to futureproof.

You have the hardware component.

Now as the operating system and app component come into place,

you're not left behind.

Another aspect of that is addressable memory.

Right now, most smartphones and tablets, they're all 4 gigs or lower.

So you're not getting the benefit of addressing beyond 4 gigs at this point.

But that's something that will be happening,

I'm sure, in the not too distant future.

Right.

And that was part of the motivation for 64-bit computing

and the high end machines, right?

Now we have addressing.

It's very easy to address; have a higher number of addresses;

and being able to very, very simply address a larger amount of memory.