From: Bill Gates [/o=microsoft/ou=northamerica/cn=Recipients/cn=1648] on behalf of Bill Gates
Sent: Sunday, March 07, 1999 11:37 AM
To: Marshall Brumer; Jim Allchin (Exchange); David Cole; Carl Stork (Exchange); Brian Ball (Exchange); Bill Veghte
Cc: Paul Maritz; Mike Porter
Subject: RE: MS/Intel Executive meeting notes - 3/3/99 - Santa Clara, CA

Sensitivity: Confidential

Is Intel planning to write drivers for Linux? This huge driver group scares me. Its them doing something we should do and they will do it cross OS in a way that could be a real problem for us. Maybe not but we should find out whether this is the case.

-----Original Message-----
From: Marshall Brumer
Sent: Thursday, March 04, 1999 10:50 AM
To: Jim Allchin (Exchange); David Cole; Paul Gross (Exchange); Frank Artale (Exchange); Carl Stork (Exchange); Brian Ball (Exchange); Bill Veghte; Tom Phillips (Exchange); Jim Ewel; Harel Kodesh
Cc: Bill Gates; Steve Ballmer; Paul Maritz; Bob Herbold; Marshall Brumer; Mike Porter
Subject: MS/Intel Executive meeting notes - 3/3/99 - Santa Clara, CA
Sensitivity: Confidential

Microsoft/Intel Confidential
Executive Summary
We met with Intel today to continue our executive roadmap disclosures and to discuss current high level issues between the companies. This meeting followed a Win64/IA64 meeting also held at Intel that either OnLee or MikePo should be sending notes on.

The roadmap details are below and slides should up up on http://msintel as soon as we have them from Intel. Intel roadmap highlights include:

- Mainstream/Server/Workstation lines will be >600 MHz by EOY99 and all hit 1GHz in 2000.
- Value line at 500 in 99 and 600 in 00.
- Mobile > 600 in 99 on .18micron up to 7xx in 00.
- Intel's process technology now on a 2 year treadmill vs 3+ years in the past.
- Biggest hole is lack of Willamette details that we will work to rectify in next 1-2 weeks.

Prior to MS presenting our overall plans for Windows 2000, Windows 98 and Windows CE, Jim briefed the group on overall picture of an upcoming MS reorg that includes him taking over the executive role in the Intel relationship.

Key issues discussed inlude:

- Server working relationship - how to better engage one another in this space for positive customer ouriented results. Brian Ball introduced and tasked here with driving for good results with Intel in this space. There is much we can do here with renewed focus on working together at both companies.
- 'Value Platforms' aka 'Internet Appliance' - Pat is very concerned that we need to create an offering in this space. We had a broad discussion about what this actually meant and did not really bottom out. Jim viewed this area as the NC all over again in the consumer/internet space. We agreed to get together with David Cole owning the MS thinking on this.
- Security - We have been stuck in this area for a while. We are working to setup a meeting that is basically a go/nogo meeting to identify the areas we can/will work with Intel on and move forward. They goal is to cut through some of challenges in this area in one giant step and move on.
- Driver Signing at Intel - Intel is creating a large focus behind drivers and driver quality. They are creating a completely separate organization to create/test drivers outside the silicon groups to better align the driver goals with quality rather than silicon schedules. We are supporting their efforts and working on a plan to let Intel self sign their drivers over the long run.

Details, action items and attendees below. Please send me mail if I got any of this wrong. Thanks!

Details
Intel Architecture Roadmap

- Server/Workstation - P3Xeon>600Mhz in 99 up to 700Mhz by EOY99, Foster 1 GHz in 00

- Mainstream - P3>600MHz in 99, Willamette 1GHz in 00. Willamette announce Q2/3 at 1GHz with new instructions. We need to get the info on these instructions in house as some of this is new here (especially timeline and that this is now mainstream, not just workstation).
- Value - Celeron at 500MHz in 99, Timna at 600MHz in 00.
- Mobile - P3>600Mhz in 99, Mobile-Coppermine at 7xx/600Mhz in 00, Timna at 533 in 2000. .18 micron 2Q99 with P2 then into P3 in 3Q99 - First .18 micron from Intel is in Mobile.
- A bit further out in the value line, Intel showed Coppermine128, Timna, then Pinecrest in .13 micron through 01 - not lots of detail here just faster/smaller.
- A bit further out in the desktop/mainstream line - Willamette through late 00, Northwood at .13 in late 01.
- Further out on Server - Merced 00, McKinley 01, Madison (Perf)/Deerfield (Cost reduced), Yosemite (beyond McKinley going up in perf) and then Gallatin following Foster a bit lower down in the map.
- Intel is now on a 2 year cycle for process technology. They use to be on a 3+ year cycle. They are also starting their Mobile first on the new process when it is first introduced.
- Launches - Merced 3Q00, Foster 3Q00, Willamette 3Q00, McKinely 2Q01. Intel asked for us to be in sync with all these and to deliver SW for them. There is much work to see where these all fit into our roadmaps.
- They touched on wanting complete Geyserville solution going forward.
- Also noted that they now deliver their four products in parallel. They use to do two lines and are up to four.

Windows Roadmap

Jim started this area off with a description of some upcoming org changes that I will not go into in this mail. Overall, the message was that Jim is now the executive in charge of the Intel relationship at MS. We then presented the Windows 2000, Windows 98 and Windows CE roadmaps and some slides on key features of each. We gave Intel NON-public dates of 4/21 for Beta 3 and 10/26 for RTM. David explained the high-level overview of where we see Win98/Win2000 splitting on consumer and agreed that we will spend more time with Intel on this as we have already done on Win98 OSR1 work.

Server Strategy Discussion

John Miner presented a number of slides on the Server space and how Intel views this space. This was to get us into a discussion on how to work better in this area. There have been some good and bad experiences here and the goal was to get us moving forward more broadly. Brian Ball (welcome!) was named as the MS person to work more closely with Intel on this front.

Their view in this area has changed from 95-98 scaling up and growing the market in the corporate world to 99-xx focusing on Comm/ISP servers beyond the standard model we have today. They want to scale from top to bottom in the standard space and grow into the Comm/ISP world. They have spent a bunch of time with ISPs (8000 surveys with 5000 ISPs) helping them form this mindset and now are asking us to engage with them in this. We should note that they have already started much of this and did that with other OS folks and seemingly came to us late, but they are now seeming to be interested in making this happen MS/Intel wise - we need to engage on that to determine real plans here.

Some specific areas they are working on

- IA64 Developer Implemetation Guide - This is sort of turning our Server Design Guide around on us. Our guide (jointly authored with Intel) is a Windows focused guide telling folks how to build HW. They want a guide that is IA64 focused telling folks how to build SW/OSes/Peripherals and probably systems. We need to learn more in this area and then determine if this is something we want to get involved in as it levels the playing field for the OS side of things while using our input to do it.
- NGIO - Much has transpired on this in the past 1-2 weeks. Intel has made drastic changes to the licensing model and the openness of NGIO that is positive for MS and for the industry. MS has agreed to join both NGIO and Future IO groups and we are now in the process of crawling through the NGIO agreements to make sure this is truly something we can sign up for. We also agreed to put out our IO architecture requirements doc by the end of March.
  - Note that they have not bottomed out with Future IO folks so there still looks to be two of these. Tom made clear here that we still have a goal of seeing there only be one architecture here and that we would be interested in helping make that happen. Miner stated that there are already 4 companies trying to accomplish this and adding a 5th would not be of any help.
- PAE - We are already pushing this a bunch and surprised by them not being happy about it. We will spend more time with Intel on this one.
- 8-way optimized benchmarks - Again, we need to get more tied into this one. Both sides are spending time here and just need to be in sync and see what we can leverage by working together.

Intel has created the Intel 64 Fund to accelerate the completion of solutions for Merced. This fund is targeted to be $200M with money from Intel, 3-5 OEMs, and some early adopter end users corporations. The fund is targeted at startups rather than existing companies that would be approached via normal (evangelism style) channels. The focus

is on creating solutions for shrink wrapped OSs (like NT) not for proprietary Unix's. This is a creative idea that folks at MS are already discussing in other mail.

We bottomed out in this discussion agreeing that there was much we could work on together going forward and that we would strengthen the relationship here with Brian now driving on our side. We will also stretch this more into the marketing space going forward.

Value Platforms aka Internet Appliance discussion
Intel is concerned that 'we' are missing the boat in the value platform area down at the 'Internet Appliance' offering. Pat is the one who is very charged up over this. He sees us completely missing the boat with both the IA architecture and Windows being of no value here unless we move the PC down into that space (rather than what is currently happening with other platforms moving up into that space.)

The product they envision is for mail/browse/commerce. Jim asked Pat what they actually wanted us to do. Pat said 'make significant progress against - Ease of Use, Stability, Price and Simplicity to meet the needs for 2H00'. They talked about this being a Windows 98 based appliance platform. They could not articulate broadly beyond that it was OEM only and agressively legacy reduced and had a hard time answering David's question of what would you take out of the PC to make this thing work. Jim made clear that if this is truly a fixed function type device then there is not point in doing the work from Windows as it is not a PC nor will it be.

Jim's position is that this is the NC all over again in the consumer space. Most folks in the room agreed with this thinking and that since we had handled this before ala NetPC, that we could do this again. There is more work to be done here and David agreed to drive the thinking at MS and work with the right folks at Intel to explore this area. I will work with Dan Russell at Intel to get the joint parts of this going.

Security Discussion
There was a short discussion of the challenges we have had on working together in Security. Their opening slide was 'Security - Collaboration or Collision'. This was a useful discussion to educate execs on both sides of what has been happening.

Our fundamental sticking points are around how we look at the space. We firmly believe that we need to get ubiquitious core support to get Content to be authored for the PC rather than closed boxes and Intel does not see it this way. Based on this fundamental disagreement, we are stuck on how to make the core part ubiquitous.

Intel believes that they are more engaged with the consumer folks than MS (ala 5C) and thus we don't get the picture. An interesting point in their view is that they are only protecting content as it comes into the PC (via some wire like 1394), they are not worried about the content once there. We stated that there are many ways to get the content and it must be protected once on the PC. Thus they think they can get good enough security above the CPU/OS rather than at it's core and we disagree. This is a good place to start our discussions going forward with Intel to see how to resolve this area.

The timing issue (not just ubiquity, but timing for getting things going) was another issue based on Intel's waterfall model. We understand and can agree to the Intel waterfall model, but cannot agree that all this must wait 18-36 months to be in all CPUs and shared across to other vendors.

The other sticking point has been that Intel is not comfortable having a discussion with us under our standard CITA terms or under extended CITA terms that would give them MORE rights to also build what they need in SW. They are saying that they are not interested in signing away all their IP before even coming to the table here. Note that this is a fundamental change to how we work together with Intel and is something that we need to address going forward as it will surely come up again. Our current solution is to have a meeting that is not covered by CITA that will mainly map out all the areas in this space that we could play together, identify the areas that we will and will not engage and then cover each of the engaging areas under CITA and get to work.

We are working to setup a meeting with Intel with the goal of coming out of the meeting with a map of what we will and will not engage Intel on.

Driver Signing Discussion
Intel wanted to stress to us their committment to better drivers and ultimately being able to test and sign their own drivers. They are building up a huge number of people (~450) to work in this area. These folks include a driver software quality lab, platform driver quality lab and software qualification process team. Overall, the broad goal is to do driver development completely separate from silicon development so the goals of the driver folks are not put second to the goals of the silicon guys. At Intel, this means that the driver guys having a quality goal rather than a ship date only goal. This is good for us and good for Intel.

WHQL is working on a plan with Intel to implement this and things are looking good. The only real sticking point is

what happens to Intel if they sign a driver that really should be failing. MS wants to reserve the right to pull the signature and Intel does not want this to ever happen. We will clearly revisit this issue, but still need to make this happen going forward.

We also need to make sure that part of the process at Intel is to always be in sync with the development group within MS that is shipping the OS the driver supports. We cannot afford to have Intel doing their work and just sending us a 'completed' driver at the end of the process. Intel agrees with this and we will drive to make sure this is part of the process.

IDF and WinHEC Alignment
We did not bottom out in this area. More work in a smaller group to happen here.

Action Items

- Drive disclosure on Willamette new instructions and then followon for all new CPUs - Mike Porter.
- Followup on Server joint work - Brian Ball/Jim Ewell/Mike Porter.
- Get Intel 2x2 for 00 consumer and business desktop - Intel/Mike Porter.
- Drive value platform/internet appliance discussion - Marshall Brumer/David Cole.
- Drive closure on security discussions and next steps - Marshall Brumer.

Attendees

Intel
Pat Gelsinger
Albert Yu
John Miner
Bob Jecman
Dan Russell
Fred Pollack
Jean McNamara
Richard Wirt
Frank Ehrig
Mike Webb
Others

MS
Jim Allchin
David Cole
Paul Gross
Frank Artale
Carl Stork
Brian Ball
Bill Veghte
Tom Phillips
Jim Ewel
Jeff Havens
Mike Wehrs
Marshall Brumer
Mike Porter