



From: Russ Arun
Sent: Thursday, August 28, 1997 9:55 AM
To: Charles Fitzgerald
Subject: RE: Microsoft VM JCK 1.1.1 issues

Yup

From: Charles Fitzgerald
Sent: Wednesday, August 27, 1997 10:26 PM
To: Russ Arun
Subject: RE: Microsoft VM JCK 1.1.1 issues

still want FP write up? (I am way behind on mail).

-----Original Message-----

From: Russ Arun
Sent: Tuesday, August 26, 1997 6:33 AM
To: Charles Fitzgerald
Subject: RE: Microsoft VM JCK 1.1.1 issues

Jerome. I need a write up the Intel FP issues as it affects Java. Addressing how it will affect perf to satisfy the test (that they excluded us from) is a bonus - I can send the test to Jerome OR he can talk to PeteKu, if that helps

Privileged Material

Redacted

I am not sure I agree. They will have the problems we face in droves with their newly announced native compiler. So they might be thrilled to work with us on a language change

From: Charles Fitzgerald
Sent: Saturday, August 23, 1997 2:35 PM
To: Russ Arun
Subject: RE: Microsoft VM JCK 1.1.1 issues

just let me know what you want from jerome or intel and I'll get them moving on it. assume you will own any discussion with symantec - let me know if you want help/advice whatever.

-----Original Message-----

From: Russ Arun
Sent: Friday, August 22, 1997 7:16 PM
To: Charles Fitzgerald
Subject: RE: Microsoft VM JCK 1.1.1 issues

Symantec is affected by the first issue as well and that is the one I wanted them to be co-author on.

For the second Intel (and Symantec) and whoever else can join us

From: Charles Fitzgerald
Sent: Friday, August 22, 1997 7:12 PM
To: Russ Arun
Subject: RE: Microsoft VM JCK 1.1.1 issues

ok I can help on the later - would symantec/intel/anyone with x86 interest support the first as well or is that just us? Intel will fo whatever we want here I suspect and be more annoying to Sun than I could ever be

-----Original Message-----

From: Russ Arun
Sent: Friday, August 22, 1997 7:11 PM
To: Charles Fitzgerald
Subject: RE: Microsoft VM JCK 1.1.1 issues

MS-PCA 2564174

Sounds fine Remember there are 2 separate issues:

The JIT issue that requires a language change (of a different sort) Peter/Patrick need to author this.

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The FP issue (for the JIT too) that they are almost relenting on, but need to be goaded - the Jerome paper.

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**From:** Charles Fitzgerald  
**Sent:** Friday, August 22, 1997 7:06 PM  
**To:** Russ Arun  
**Subject:** RE: Microsoft VM JCK 1.1.1 issues

I would not involve peter - they hate him and try to avoid amnsour. go through enrique and let him talk to Cafe team. this is one they can do in private so enrique ought to be able to sell them on it. (and once they are committed, we'll make it public ;-)

we can also use Intel on this - if we tell them to lobby for language change. they will harass Sun until they relent. we can also use Jerome Coonen, who is numerics guy we have contracted with this year on fp issue. he will go lobby the fp community. we should gte write up of our proposal and send to him. he has a couple proposals on fp side for java modifications. he is sharp and realistic.

-----Original Message-----

**From:** Russ Arun  
**Sent:** Fnday, August 22, 1997 7:04 PM  
**To:** Charles Fitzgerald  
**Subject:** RE: Microsoft VM JCK 1.1.1 issues

Ooops - Peter Plamondon (to go bite Mansour's ear)

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**From:** Charles Fitzgerald  
**Sent:** - Friday, August 22, 1997 7:03 PM  
**To:** Russ Arun  
**Subject:** RE: Microsoft VM JCK 1.1.1 issues

Peter = ???

Let me forward another thread.

-----Original Message-----

**From:** Russ Arun  
**Sent:** Friday, August 22, 1997 6:54 PM  
**To:** Charles Fitzgerald  
**Subject:** RE: Microsoft VM JCK 1.1.1 issues

If we go this route (and I think we should), I would rather:

- \* Call Enrique first
- \* Talk to Peter (so 2 people can chat with Mansour)
- \* Then call Mansour

I will keep you posted if we go that far.

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**From:** Charles Fitzgerald  
**Sent:** Friday, August 22, 1997 6:48 PM  
**To:** Russ Arun  
**Subject:** RE: Microsoft VM JCK 1.1.1 issues

definitely use enrique and bcc: ludwig.

-----Original Message-----

**From:** Russ Arun  
**Sent:** Friday, August 22, 1997 6:48 PM  
**To:** Patrick Dussud, Michael Toutonghi, Peter Kukol  
**Cc:** Charles Fitzgerald, Kevin Miller  
**Subject:** RE: Microsoft VM JCK 1.1.1 issues

I think we should try to propose a language change that will make it easier for us. Christian was amenable to this. Our friends at Symantec might want to be co-authors - I can ask Enrique Salem (before I do Mansour).

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**From:** Peter Kukol  
**Sent:** Friday, August 22, 1997 3:07 PM  
**To:** Russ Arun, Patrick Dussud, Michael Toutonghi  
**Cc:** Charles Fitzgerald, Kevin Miller, Java Runtime Performance  
Technical  
**Subject:** RE: Microsoft VM JCK 1.1.1 issues

MS-PCA 2564175

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I believe Jerome's and Golliver's papers clearly explain why the FP thing is unreasonable. As far as the other problems, we could possibly hack something together but it would be very ugly and extremely dangerous - but I'll look into it anyway.

Thanks  
Peter

-----Original Message-----

**From:** Russ Arun  
**Sent:** Friday, August 22, 1997 3:00 PM  
**To:** Patrick Dussud; Peter Kukul; Michael Toutonghi  
**Cc:** Charles Fitzgerald  
**Subject:** FW: Microsoft VM JCK 1.1.1 issues

Looks like they are choosing to claim that this is a compatibility issue and whenever it comes to an issue between compat & perf the former wins (like the Sun JIT proves :-)). So we might have to either:

- Propose a language change
- Or strive to solve this

I think we should do the former. Can I impose on Peter for this one? We might have friends in Symantec for this case :-). I am assuming there is no simple hack to pass these tests for IE 4.0. I also want to confirm that this is a language spec test (which I think it is after talking to Peter/Patrick this morning).

Also Javasoft wants a technical write up on the challenges we face with the Intel FP for the exponent spilling issue (same perf kind of thing write up). Can I impose on Peter for this one too?

Russ Arun

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**From:** Russ Arun  
**Sent:** Friday, August 22, 1997 2:40 PM  
**To:** 'xtian@eng.sun.com'  
**Cc:** Charles Fitzgerald; Kory Srock; Michael Toutonghi  
**Subject:** RE: Microsoft VM JCK 1.1.1 issues

Comments below. I want to make sure that this is a summary of what we talked about. Can you please make any changes to what I might have said incorrectly? Thanks.

>>\* 2594 - Conform: (vm) variable initializer is evaluated and  
>>assignment performed once when class is initialized(spec 8.3.2)  
>> Class initializer runs too early. All JIT code,  
>>including JDK with perf pack, has this problem.  
>>  
>>1. class09201 - class field initialization (Wont Fix)(Fail)  
(2594)  
>> tests.lang.class092.class09201.class09201

> This issue has been referred to engineering for evaluation. I will get  
> back to you on it as soon as I have a reply from them.

! We pass this test with JIT = off. So we are going to ignore this one.

>>\* 5079 - Conform: class initialization when its superclass have  
been initialized ( Spec 12.4.1 )  
>>been initialized ( Spec 12.4.1 )  
>> Class initializer runs too early. All JIT code,  
>>including JDK with perf pack, has this problem.  
>>  
>>1. exec00704 - class initialization when its superclass have  
been  
>>initialized  
>> tests.lang.exec007.exec00704.exec00704

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**MS-PCA 2564176**

> This issue has been referred to engineering for evaluation. I will get  
> back to you on it as soon as I have a reply from them.

! We pass this test with JIT = off. So we are going to ignore this one.

Let us combine these two into one. Essentially our JIT (and the Symantec JIT as far as we understand) initialize the class and \*all its references\* when it compiles a class, as opposed to the more delayed initialization effect you see from an interpreter. We both agree that the way we have it, gives us a perf win, but your point is that this is a compatibility issue. If we can preserve the perf win (we all want Java to be fast) and be compatible, that would be ideal. Visual Cafe will hit the same issue.

We want to explore the possibility of changing the language spec at this level to allow us to gain this performance win, but that is a longer term plan (and not something that can be achieved in the IE 4.0 timeframe). We will work on a proposal for this.

I will try to get back to you about the plan for IE 4.0 on Monday. As I noted our current solutions to pass this test are rather risky. Nevertheless we want to strive to find a short term and a long term solution that works for both of us. If you have any technical thoughts/ways to attack it we would love to hear it.

>>\* 5070 - Conform: cases floating-point addition is not  
>>associative. ( Spec 15.17 )  
>> Exponent cannot be restricted without severe  
performance  
>>penalties on Intel platforms. The problem does not have anything  
to do  
>>with associativity. The same problem happens on the JDK with  
perf pack.  
>>  
>>1. expr32902 - nonassociativity of floating-point addition  
(Sun  
>>Fails Too JIT=ON)  
>> tests.lang.expr329.expr32902.expr32902

> The following test \_is\_ valid, and you must pass it. This test  
would  
> benefit from better documentation and the use of multiple  
datapoints.  
> but as a test for non-associativity it is testing properly.

! We pass this with JIT = off. So we are going to ignore this one.

Based on some other issue, you want us to "exclude" this test from consideration. However you would like a technical write up of the issue we face with the Intel FP, to solve this for the longer term. We will try to give you one. We both agreed that this is not as time critical as solving the above IE 4.0 related issue. We will ignore/exclude this test for this pass.

>>\* 5288 - JCK111 Build2227. Changing method to final  
throws  
>>NoClassDefFoundError instead of VerifyError  
>> We do catch this error in the VM, but we do it at run  
>>time instead of verification time. It should be worth noting that  
we  
>>throw this error when the verifier is not present, while JDK would  
>>silently ignore the error.  
>>

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>>1. binc03301 - Changing an instance method that is not  
final to be  
>>final  
>> tests.lang.binc033.binc03301.binc03301

> Section 13.4.16 of the JLS is clear on this point, so you must pass  
this  
> test.

! We think this test is an "implementation" specific test. You are doing a  
! verifier level check and we are doing a runtime check. Both tests  
! behave  
! the same way from the user perspective, i.e. throw an error.

>>JDK ISSUES - TESTS FAIL ON JDK

>> \* binc03301 - Changing an instance method that is not  
>>final to be final (Sun Fails Too)  
>> tests.lang.binc033.binc03301.binc03301

> You must pass this test. (This is a duplicate of issue 5288.)

! We think this test is an "implementation" specific test. You are doing a  
! verifier level check and we are doing a runtime check. Both this &  
! 5288  
! behave the same way from the user perspective, i.e. throw an error.

Based on the test output the end user effect is the same. So I think  
these  
tests move into the implementation arena. We don't see this as a  
compatibility issue. You will pursue this further and get back to us.  
Hopefully you will agree with us on this interpretation.

That is about it. If we agree, we just have the issue with the JIT that we  
need to work through. It was nice talking to you. Let us catch up face to  
face, the next time we have an opportunity. Thanks.

Russ Arun

**MS-PCA 2564178**

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