MINUTES OF MEETING 122

X3J3 FORTRAN

August 3-7, 1992

Bellevue, Washington

X3J3/Meeting 122/271

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1 Agenda

Agenda for X3J3 Meeting 122

Monday, August 3, 1992

8:00	Opening Business	J. Wagener
9:00	Report and Discussion from WG5 Meeting (92-135)	J. Wagener, J. Martin, I. Philips
	Report from X3H5, POSIX	
	Report from Electronic Processing Ad-Hoc Group	J. Himer
	Subgroup Meetings (92-098, 92Jun17 email)	

Tuesday, August 4, 1992

8:00	Interpretation Processing (92-121,122,123, 126,127,128,129,130,131,132,134,135)	A. Tait, subgroups
10:00	HPF Report	K. Kennedy
	Publication of S20 in Fortran Forum	L. Meissner
	Appointment of the WG5 Management Committee Representative and S14 Editor	
	Subgroup Meetings	

Wednesday, August 5, 1992

8:00	POSIX	
	Compiler Directives	
	S14	
9:30	Boeing Tour	
1:30	Interpretation Processing	A. Tait, subgroups
	Subgroup Meetings	
4:00	US TAG Organizational Session	I. Philips

Thursday, August 6, 1992

8:00	Interpretation Processing	A. Tait, subgroups
10:00	Final Resolution on WG5 Actions (S14)	
	Final Action on POSIX Request (92-128, 92Jul16 email)	
	CLIP Review (WG5-N730)	K. Hirchert
	JOD Report (S17)	K. Bierman
	Subgroup Meetings	

Friday, August 7, 1992

8:00	BSR Report	
	Interpretation Processing	A. Tait, subgroups
	Compiler Directives (92-124)	R. Weaver
	SD-1 Replacement, if time permits (92-032)	J. Wagener
	New SD-3 draft (project proposal)	
12:00	Closing Business (92-125)	M. Hoffert
1:00	Adjournment	
2:00	US TAG Session	I. Philips

2 Opening Business

2.1 Meeting Objectives

1. Process interpretations and update the S20
2. Reply to the POSIX request (92-128)
3. Generate the R&R document (S14)

2.2 Adoption of the Final Agenda

Discussion Leader: Jerry Wagener

Discussion:

Weaver: New items should not wait until the last day. People need time to go off and research them further after their initial presentation.

Moss: We should have a firm adjournment time, which should appear on the published agenda.

Action: To approve the agenda as modified (see section 1); unanimous consent

2.3 Approval of Meeting 121 Minutes

Discussion: Walt Brainerd's name is spelled incorrectly several times.

Action: To approve the minutes with Walt's name corrected; unanimous consent

2.4 X3/BSR Report

Discussion Leader: Jerry Wagener

Fortran 90: The BSR is meeting this week and one of their agenda items is the approval of Fortran 90. They are scheduled to act on Fortran 90 on Thursday. An attempt will be made to report on the results of that action Friday morning.

X3 Documents: X3J3/92-133 is a list of X3 documents which are of potential interest to X3J3 members. It will include all relevant standards actions. Anyone desiring one of the listed documents should contact Jerry. If there are no objections, this list will be distributed at each meeting instead of distributing each of the documents in its entirety.

2.5 Membership/Attendance Report

Discussion Leader: Maureen Hoffert

Discussion: There are currently 33 members, 27 of which are present. There are 4 members who will lose their membership if they don't attend this meeting.

2.6 Treasurer's Report

Discussion Leader: Mallory North

Discussion:

North: We have a balance of about $400 going into this meeting but bonding fees for Jerry and myself are $100 each.

Weaver: Doesn't CBEMA cover bonding expenses?

Ellis: We should get CBEMA to pay the bonding fees if they are willing.

North: I'll look into this.

Motion: (Lauson/Moss) to accept the Treasurer's report

Action: motion passed by unanimous consent

TREASURER'S REPORT
MEETING 121
X3J3 FORTRAN TECHNICAL COMMITTEE
AMERICAN NATIONAL STANDARDS INSTITUTE

1. Meeting Attendees who paid the $80.00 meeting fee
   (* denotes attendees who were exempted by vote of the Committee):

Keith H. Bierman
Richard P. Bleikamp
Walt Brainerd
Lauren Feaux
Dick Hendrickson
*Jim Himer
Kurt W. Hirchert
Henry S. Katz
Tom Lahey
*Hank Lauson
Richard E. Maine
Jeanne T. Martin

Alex Marusak
David Mattoon
C. Mallory North
David Philimore
Ivor R. Philips
Doug Scofield
Janice Shepherd
Maureen Smith-Hoffert
Jon Steidel
Andrew Tait
Jerrold Wagener
Dick Weaver
Stan Whitlock

2. Deposits and disbursements:

Check	Date	Amount	Balance	Transaction	Purpose
	5/22/92		.00	Balance forward	
	5/22/92	+80.00	80.00	Deposit	meeting 121 fees
	5/26/92	+1200.00	1280.00	Deposit	meeting 121 fees
	5/28/92	+480.00	1760.00	Deposit	meeting 121 fees
	5/29/92	+80.00	1840.00	Deposit	meeting 121 fees
101	6/ 5/92	-69.57	1770.43	Mallory North	refreshments
102	6/ 5/92	-33.89	1736.54	Rose-Hulman Institute	mailing costs
103	6/ 5/92	-8.00	1728.54	Mallory North	zippered money bag
104	6/ 5/92	-759.76	968.78	ARA Serve, Inc.	refreshments
	6/ 5/92	-8.40	960.38	Bank debit	endorsement stamp
	6/ 8/92	-9.50	950.88	Bank debit	check order
105	6/ 9/92	-8.75	942.13	Rose-Hulman Institute	sign printing
106	6/12/92	-141.43	800.70	Rose-Hulman Institute	van/car mileage
107	6/12/92	-254.00	546.70	Christopher M. Doyle	meeting 121 assistant
108	6/18/92	-142.48	404.22	Rose-Hulman Institute	reproduction
	6/30/92	-3.09	401.13	Bank debit	bank service charge

3. Debts outstanding: None

4. Receivables outstanding: None

5. Room rentals donated at no cost to X3J3: $1625.00

   Provided by: The Boston Connection Hotel, FIDS room, $250.00
   Rose Hulman Institute, meeting rooms, $1375.00

2.7 Comments from the Membership

Tait: Fax numbers should be included in the membership list section of the minutes.

Hoffert: It will be done next time.

Lauson: I would like to be excused from paying the meeting fee.

Motion: (Lahey/Meissner) Excuse Hank Lauson from paying the meeting fee.

Action: motion passed by unanimous consent.

Philips: As Alvin Mong will only be attending part of the meeting, I would like to request that he also be excused from paying the meeting fee. [This was withdrawn after several members objected.]

Hoffert: We need to address the issue of meeting attendance. Currently, a member is considered as having attended the meeting if they show up for part of one day. I will put something on the table at the next meeting.

Ellis: If you are here at all, you should pay the full fee.

Leonard: You should only have to pay the fee if you are credited with having attended the meeting.

answer: These are quite different issues. If you attend any part of the meeting, you make use of those things which the meeting fee is intended to cover, e.g. copying expenses.

Rose: There is a problem with not sending material to alternates - it left me coming to this meeting without the materials.

Wagener: We do make exceptions in the case of alternates who attend regularly.

Weaver: I view email much like a phone conversation and the cumulative email should not be published and distributed at the meeting.

Tait: All I am distributing is interpretations related material.

Hirchert: Who is responsible for and what is the purpose of the abridged FORTRAN 77 standard.

Weaver: I did this to help those who do not want to carry the full FORTRAN 77 standard to the meetings.

Hirchert: The email mailing list for interpretations is intended to be informal.

Bierman: I would like to see a synopsis of the email published but not all of it. This will allow us to ensure that all issues are addressed.

Leonard: I don't know which email messages to bring, I would request that formal proposals and requests appear in the pre-meeting or distributed at the meeting.

Weaver: There are no formal proposals in the email.

Ellis: I assume that anything important will be submitted on paper for the meeting.

Wagener: Perhaps we should revisit paper 92-027.

straw: Andrew should provide a document containing all of the email. (13-12-5)

J. Martin: The email distribution is useful as Andrew does provide some analysis of it.

Wagener: This discussion indicates that we need to look for a better way, if there is one.

Weaver: What is the status of the procedures document?

Hoffert: It's ongoing.

2.8 Subgroup Assignments

Tait: Paper 92-123 lists the initial subgroup assignments. More assignments will be made throughout the meeting.

2.9 WG5 Reports

Discussion Leaders: Jerry Wagener, Jeanne Martin, and Ivor Philips.

2.9.1 Jerry Wagener's Report

Strategic Plan Adopted (WG5/SD-4, N820a, 92-011)

- near-term (1995-96) revision, with "train model"
- needs database / requirements (WG5)
- development / maintenance (X3J3)
- auxiliary standards policy (supplementary, extension)
- R & R documents

WG5 Resolutions (N814d)

- provisional selection of X3J3 as the primary development body (need I-type SD-3 by mid-year 1993)
- corrigenda processing (X3J3 provides S20, plus a list of those S20 items ready for WG5 adoption following the November 1992 X3J3 meeting.
- WG5 management committee

2.9.2 Jeanne Martin's Report

References: 92-135

Discussion:

Leonard: What is the publishing plan for the revision or corrigenda? An updated document would be helpful for us in processing interpretations.

J. Martin: When you order the standard, you will receive the corrigenda in addition to the standard.

Wagener: There are no plans as yet to create an updated document although I would like to get on with one as soon as possible.

Leonard: We should create an updated working draft after the corrigenda is done.

Meissner: The issue of X3J3 only being conditionally approved as the primary development body should be a serious concern to X3J3. There was serious consideration given by WG5 to not using X3J3 at all. The current state is a compromise, i.e. let's give the X3 I-type project rules a chance.

Philips: We should rewrite the document for the revision and we should decide on the document format, i.e. Tex, SGML, etc.

Hirchert: There isn't time to rewrite the document before 1995 although we may have to make some changes in order to conform to the ISO style.

Moss: I believe that the ISO rules allow the publishing of an integrated document rather than publishing the corrigenda separately.

Ellis: The ISO rules require that the document be provided by the technical committee. Therefore, they will publish whatever we give them.

Weaver: WG5 considered forming a task group to be the primary development body. Their feeling was that this task group would look much like X3J3, but it would operate under ISO rules instead of X3 rules. John Hill and Bill Rinehuls should be informed of this.

Leonard: If such a task group were formed, rules would have to be established for it in order to protect the vendors in the same way that the ANSI/X3 rules do today.

Ellis: All major vendors already work on international standards and they wouldn't if there weren't rules in place. WG5's desire is for the primary development body to operate under one set of rules. The X3 I-type project rules should do this. WG5 recognizes that X3J3 has the technical expertise and the financial support to do the work.

Bierman: Working as a task group of WG5 saves the time spent explaining X3J3 rules to WG5 and WG5 rules to X3J3. At the WG5 meeting, Lawrie Schonfelder wondered why the US was special, i.e. why should any national body develop an international standard.

Meissner: We must start thinking about what to do if an I-type project is not in place by 6/30/93.

Philips: We are probably exaggerating our concern here as X3 has other I-type projects in place and they seem to be working well. WG5 was also concerned that X3 may change the rules mid-project as they did last time.

2.9.3 Ivor Philips' Report

Philips: It was a very positive meeting. [Ivor reviewed the strategic plan and the resolutions which are most important to X3J3. He also brought up the issues of Pointer initialization, Pointer bounds, and the deletion of features in the next revision.]

Wagener: [Jerry read resolution V9, the request for X3J3 to be the primary development body operating under I-type project rules by 6/30/93, as the printed copy won't be available until later in the day.] I will be discussing the facts contained in the resolutions with X3. I will also reference written items from these minutes and Jeanne's report. We must decide this week if we are going to do ahead with this and begin preparing a SD-3 project proposal based on this resolution.

Moss: The pointer nullification issue is not an item for a technical corrigenda but rather is an item for the revision.

Bierman: WG5 expects X3J3 to review this issue. They would probably accept the decision of X3J3 regarding whether of not this is an item for a technical corrigenda or for a revision.

Meissner: Our new SD-3 should provide for the possible deletion of features.

Weaver: I discussed with both Lawrie Schonfelder and Wolfgang Walter the possibility of providing a user option to indicate whether or not pointers are to be initialized. I would like to downsize the language by removing constraints, i.e. extending the language in a natural way.

J. Martin: [Jeanne described the amendment procedure and indicated that it would take longer than a revision.] If we did an amendment before a revision, we would have to amend 2 standards: the ANSI Fortran 90 standard and the ISO Fortran standard.

2.10 X3H5 Report

Wagener: I have asked Jon Steidel to put together a parallel processing subgroup and to lead that group. Keith Bierman will be a member and will be the X3H5 liaison. This group will be responsible for interfacing with both X3H5 and HPFF.

Bierman: X3H5 is now balloting their model document to determine if it is ready to go out for public review. The FORTRAN 77 binding has been withdrawn. At this point, X3 has only approved the project to develop the model document. Their current active membership is 12 or 13.

2.11 POSIX

Reference: 92-128

Wagener: We will vote on some response to the request later this week. Joanne Brixius has served as our liaison to the FORTRAN 77 bindings and is willing to do so for the Fortran 90 bindings.

Weaver: I was at the last .9 meeting and was 1/3 of the attendees.

Wagener: We should ask to be the IEEE equivalent of the coordinating liaison.

Weaver: At the meeting, the group was receptive to the idea of a Fortran 90 module but all of their anticipated feature cannot be contained in a module.. They anticipate the point at which they will need extensions to the Fortran language. In particular, they will probably need some extensions in the I/O area.

Hoffert: I spoke to the head of the US TAG to the POSIX Working Group and he indicated that a coordination point could be established which allows us to approve the bindings document. The coordination point can require a coordination ballot. We should review the work as it proceeds rather than just being in the position to reject or approve their work when they send it out to their balloting group.

Philips: John Hill had asked me to give coordinating information to the POSIX WG.

Hoffert: Jeanne Adams was required to send a letter indicating that we had coordinated with .9 in the development of the FORTRAN 77 bindings.

Bierman: Dick Weaver should be our liaison to .9 instead of Joanne Brixius.

Leonard: Instead of .9 developing extensions to Fortran, they should submit a list of requirements to the appropriate X3J3 technical subgroup which will draft the specifications.

Weaver: You should note that the Fortran 90 binding is referred to as 1003.19, but the committee is still called 1003.9. Rather than raise issues as to who should do what work, we should work with them.

2.12 Electronic Processing

Hirchert: I am in the process of setting up an FTP server. Email will be sent out when it is ready.

3 Committee Action Items

3.1 Interpretations Processing - August 4

3.1.1 CIO

Motion: (Bleikamp/Tait) Accept 92-071 [unresolved issue 13; S20 item 3]
Action: motion passed by unanimous consent
Motion: (Bleikamp/Tait) Accept 92-073 [unresolved issue 15; S20 item 5]
Action: motion passed by unanimous consent

3.1.2 DATA

Motion: (Moss/O'Gara) Unresolved issue 39 is resolved by S20 item 13
Action: motion passed by unanimous consent
Motion: (Moss/O'Gara) Unresolved issue 62 is resolved by S20 item 21
Action: motion passed by unanimous consent

3.1.3 PROC

Motion: (Hirchert/Hoffert) Unresolved issue 44 is resolved by S20 item 20
Action: motion passed by unanimous consent
Motion: (Hirchert/Hoffert) Unresolved issue 53 is resolved in the same paper
Action: motion passed by unanimous consent

3.2 Publication of the S20 in Fortran Forum

Meissner: I am willing to publish all or part of the S20 in Fortran Forum, but I would like some direction from X3J3 regarding which items should be published.

straw:
Choice 1: Publish the items which have second level approval as of the end of this meeting.
Choice 2: Publish the items which are forwarded to WG5 after the November meeting.
Choice 3: Publish the items that are approved by the WG5 letter ballot.
Choice 4: Undecided.
Vote: (3-3-21-2)

3.3 HPF Report

Discussion Leader: Ken Kennedy
Scribe: Jeanne Martin
Reference: 92-146 High Performance Fortran Forum
Discussion:

Leonard: What do you mean by node?
Ans: I prefer to factor out the operating system and think of processors.
---: Could a node be a UNIX process or thread?
Ans: Yes, but some people would be horrified; they think of actual processors in a multi processor system.
---: It would be possible to construct threads in an operating system to control processes.
Ans: The proposed extensions could be implemented that way, but the language makes assumptions that there will be processors implementing a data parallel program. The implementation you suggest is not precluded.
Oglesby: Could you say more about the Fortran 90 subset?
Ans: It would include the array sublanguage, procedure interfaces, and syntactic extensions such as long names and ! for comments. There is some question about modules. There are two factions. One is in favor of basing the HPF extensions on the full Fortran 90 language, but the other, more transition-oriented faction, is winning out. They fear that it would take too much time as there may be some implementation difficulty with modules. The final decision on modules and the subset will be made in October.
Hendrickson: How portable will this be? The Thinking Machines connection machine is quite different from the Cray YMP. The directives will work, but will the program be high performance?
Ans: Fortran-D tried to address this. We have run tests on both TM and Intel machines and our extensions appeared to accommodate both targets with great efficiency. There were a variety of tests; 50% of our tests specify regular array distributions and 40% specify irregular array distributions.
Meissner: Will it be necessary to redo the mappings when moving to a new architecture?
Ans: Yes. Again we have some experience along this line with Fortran D
Shepherd: Do you plan to provide a document on how to use the language?
Ans: A number of documents have been or will be produced by research organizations. Due to our accelerated schedule, I am reluctant to ask for more from the current participants of HPFF.
Lahey: We are a standards body. Your goals are to get similar implementations. Has your group agreed to provide them?
Ans: The group includes implementers in Japan and Europe - not just the US. There is no commitment to produce similar implementations, and there will probably be variations, but we believe there are solid economic reasons for making the implementations similar.
Moss: You are proposing to accommodate sequence and storage association which we all know are undesirable. If you let them in now, they will be there forever.
Ans: We are ready to accept that.
---: Are you planning a large number of intrinsics?
Ans: Our strategy is to minimize the number of new intrinsics.
---: I second that strategy; there are already too many in Fortran 90.
Ans: We will need a few that are necessary for parallel applications.

Martin, J: It is our intention to produce a short term revision including corrections and clarifications to Fortran 90 and perhaps a few extensions in the 1995-1996 time frame. Would your group like to see some of your extensions, such as FORALL, included in this revision.

Ans: Yes, very much. We are not going to standardize anything. We have been careful to follow the Fortran 90 declarative syntax rules for our proposed directives.

Meissner: Are you concerned about antitrust considerations?

Ans: We have tried to make our process as open as possible and we need to keep it open. There is a limit on the number of representatives from one organization. Also, in order to get the work done, we have limited the attendance to those who are committed to really working hard.

Oglesby: What is your relationship with the X3H5 work?

Ans: We do not conflict with X3H5 proposals except for DO INDEPENDENT so we are not inconsistent. One could have both kinds of parallelism in the same code.

Shepherd: Can the distribution directives be applied to allocatable arrays and pointers.

Ans: The distribution subgroup is looking at that.

--- Do you anticipate there being a second round once your initial proposal is completed in 1993. Will there be a revision in 1994? If not, how do you plan to resolve requests for interpretation and clarification. Each implementer might implement a feature in a slightly different way: DEC might do it one way, Cray another, Convex or SSI another. To accept any code, a compiler might have to have three switches.

Ans: Apart from FORALL, the language consists of directives. Take those away and the code would be Fortran 90 conforming. The rest is optimization. If there is no one to answer interpretation and clarification questions, it might fall on the people in this room. The authors of the HPF document could always be asked.

Weaver: To have the program defined by Fortran 90 with directives is a powerful position. The important thing is portability. If there were things you wanted to do but couldn't, could you tell us what they are? You have considerable expertise, so after your December meeting, perhaps you could take the time to tell us what we should add or change. But more immediately, what does parallel prefix mean?

Ans: This came from an MIT thesis. An example would be partial sums - using lexical scanning in parallel to produce all partial sums. A modified form of parallel prefix could be used to compute anything.

Wagener: Is REALIGNABLE a required attribute if an array is ever to be realigned?

Ans: Yes, otherwise you could build incorrect programs. The attribute is needed on both sides of a call. Without interprocedural analysis, incorrect programs may result.

--- I understand INDEPENDENT is a directive before a loop. Has that been adopted?

Ans: The first reading of that proposal was at the last HPFF meeting. It has not passed yet, but the majority wanted it so it will be in the proposal.

--- One should not think of these as loops; it is a disservice to the community to call these loops because the directive changes a loop into a dramatically different animal. I consider it poor language design. Is it still being discussed?

Ans: Yes, it is being discussed. I am opposed. Some want loops with procedure calls in them because they have already been implemented. I am personally concerned about that; it leads to a major source of nondeterminism. You can send comments to Chuck Koelbel or another member of the committee.

--- I would like to consider the desirability or possibility of more effective teamwork between your group and ours. This group is responsible for Fortran-related standards and your group is doing one. It is pioneering work that is not appropriate for a standards organization, but it would be beneficial to the entire Fortran community for us to work together on some informal basis.

Ans: I am here. Some X3J3 members and alternates are active in HPFF. We are open to other things.

--- There would be more of us participating if we had the time. Could you tell us what is critical - what is needed by a certain date?

Ans: How many of you are on our email nets? [Many hands]

Moss: How many read it? [Fewer hands]

Ans: We would be happy to have any kind of communication that works. We are attempting to progress rapidly.

--- We have an official interaction with X3H5 where our review of their work is binding. One thing we could do is review the HPF proposal.

Ans: You could get it in postscript form through anonymous FTP. We need quick feedback. We did not originally intend to submit our proposals to real standards bodies.

Moss: Another method would be to arrive at important issues and take straw polls. Ask us what we think. Our next meeting is in November.

Ans: That might be useful.

--- You could put the directives paper in our distribution. Our advice may be of help.

Ans: Absolutely. If we could set it up so we could just take away the comment part; that would make sense.

Martin, B.I endorse Weaver's comments. What will happen with your proposal eventually?

Ans: It will be published in some form that could be the starting point for real standardization.

--- Could it be submitted as an ANSI or ISO document of some sort? Perhaps a technical report.

Lahey I suggest you use SIGPLAN. I would like to invite you to our February 1993 meeting in Ft. Lauderdale.

Ans: Sounds great. Someone could come, perhaps Dave Loveman or someone else.

Weaver: What do HPF directives look like?

Ans: !HPF$ or CHPF$

--- Must that be the initial item on a line?

Ans: Yes.

Hoffert: There is an ambiguity with the REALIGNABLE keyword when fixed form (with insignificant blanks) is used.

Wagener: I understand you plan to have a final draft in December. Could there be an unapproved preliminary draft in late October? We could review that.

Ans: I hope to do that. We will make an effort to get a document out and review any feedback which you can send to HPF members.

--- We have a two week rule. Our meeting is November 9-13 so we would need for the document to be available via email by October 22 or 23 (approximately 2 and 1/2 weeks before the meeting.

Ans: We will have something. It may not reflect all decisions. I will commit to having something - not necessarily the final document.

Motion: (Weaver/B. Martin) I move that our Chair draft a letter to the HPF committee, noting their expertise, and suggesting that they point out any changes to Fortran 90 that would be of benefit to all. The letter should outline our schedule and suggest the latest date when responses from HPF would be most useful. An agenda item should then be added to the following X3J3 meeting to follow up on any suggestions.

Action: motion passed by unanimous consent

Chair: I will draft a letter and put it on the table at this meeting if it is done in time. Excellent idea!

3.4 Appointment of the X3J3 Representative to the WG5 Management Committee

Wagener: I appoint Maureen Hoffert to be our representative.

3.5 Interpretations Procedures

Discussion Leader: Andrew Tait

Scribe: David Philimore

References: X3J3/92-121 (Minutes of meeting #121)
92.27 (Wagener. Interim Interpretation Procedures)

Discussion:

Tait: There seems to be uncertainty in X3J3 on the processing of interpretations. Each interpretation will require a roll call vote. We should continue to add items to the S20 - if X3J3 preferred, we could use a straw vote. But there will be a roll call vote at the next meeting before items are forwarded to WG5. This is an ambitious, but possible, schedule.

Leonard: Favors a two stage process, in more detail: the roll call vote is good, but the first stage should be a formal vote, not a straw vote, then we should roll call for final approval. There was a suggestion of adding items if there are no objections - there should be no doubt of X3J3's formal approval. Straw votes are informal.

Wagener: A letter ballot is an alternative to the roll call vote.

Leonard: There have been observations that it is difficult to turn interpretations around in one meeting. X3J3 should balance speed and accuracy - a turnaround in two meeting seems adequate. People waiting for the answer can in general proceed on the basis of informal assessment and approval by X3J3.

Moss: Some form of two stage process seems desirable. Would be happy to accept Tait's proposal. The status field entries in S20 need to be expanded to reflect the stage of the process.

What is the status of email? It seems valuable:- the result of an interpretation has often gelled there. The email compendium gathered by Tait is useful background material, but we should be tracking formal interpretation requests and not items in email which might be construed as requests. We don't have time to track email. It seems that 99% of the potential interpretation requests on email have been turned into formal requests. The email tracking is slowing down processing of formal requests. Request that only formal requests be tracked.

Meissner: Agrees with Moss. My email requests were just requests for information and not for interpretation.

Seconds letter ballot procedure. There is not always an overlap of attendance at meetings - a letter ballot may give more consistent responses - individuals are not always up to speed on a topic at a given meeting.

Bierman: X3J3 started by doing interpretations on the standard - it's possible to read the language in the WG5 documents such that we may do corrections to the standard in order to produce corrigenda. For example my vote on the interpretation on the permissibility of printing a negative zero depends on whether we are producing interpretations or corrections. (i.e, Yes, if an interpretation - the standard does say that. No, if a correction - I think it is a mistake not to be able to print -0.0). The intent of X3J3 sometimes changed; that is why we are revisiting many of these issues.

Lahey: Don't know if it was the intent of X3J3 to allow negative zeroes, sometimes seems the intent changes. Would like to know how the interpretation processing stands & propose a motion that Tait should provide a summary of the processing at the start and end of each meeting.

Motion: (Lahey/O'Gara) An inventory of interpretations should be provided at the start and at the end of each meeting.

Discussion on the motion:

Moss: Does Tait think this is difficult to provide?

Tait: It should be easy. 92.121 says there were 69 open issues - 18 more have just been added. There are a few from WG5 to be added.

Action: Motion passed by a vote of (21-0)

Discussion (continued):

B Martin: Seconds the idea that email is useful, but not the final submission. X3J3 can't consider each item of email. It seems the input procedures for X3J3 to consider an interpretation need to be better - when do informal requests become formal requests, for instance.

Hirchert: PROC subgroup has certainly wasted time chasing about 6 phantom issues in email.

Moss: To answer B Martin. The WG5 procedures (assuming we are publishing a corrigendum), that is the ISO rules, want a Defect Management document and index. The procedures say that any member of WG5 (or its editing body X3J3) can register a request for interpretation by sending it to the defect document editor. i,e, we send something to Tait. This could be applied to the public as well.

J Martin: We don't need a motion to decide on the form. the Defect document editor (Tait) stipulates what may be required of a request.

Meissner: A formal request should have a particular form.

Tait: Formal mechanisms exist one can write to the Chair, to the Defect document editor (me), to X3. If not in the US, then the ISO form L14 can be used. The procedures are explicit.

This is all fine - if we were restricted to these rules there would be little work to do. There is much dispute in email a consensus is often reached after several weeks and no formal request gets into the S20. Believes it is important that this consensus and discussion gets into the S20 so those that don't have email can see the discussion. We should not ignore this, to do a good job, however if X3J3 wants to ignore the email, then will do what X3J3 wants.

Steidel: There are ways to get a formal request from email, and the discussion and do Tait's good job. Interpretations have changed because of email discussion - what is discussed in email needs to be carried forward, perhaps by subgroup, to bring the information out. Few can disagree with the formal papers.

Tait: Subgroups can look through the email and decide if work is to be done. We don't have to interpret and respond to everything.

Leonard: Tait did a good job with the email compendium - it is all useful input. Email is the only way to get to the public, but if someone requires an official response, then they must submit a formal request. Standards are not easy reading, and often need a lot of effort. Much of the public review comment was a question that could be answered by the standard's text. Responses can be of the form - 'Yes, it does say that'. If we track all email we will get bogged down - synopsis of email discussions would be useful.

Moss: Responding to Tait. I'm not advocating that email should be ignored - there is a responsibility there. Each X3J3 member is individually responsible for paying attention. We must get to issues raised by formal requests - will probably miss some on email, but we we have limited resources.

Weaver: Email provides a useful view of X3J3 - others may best be served by registering as observers. They will get X3J3 mail then.

Maine: Agrees with Tait. Don't ignore email - there is a responsibility to monitor email. A formal request could be submitted by email, or issues on email which merit interpretation should be written up as a formal requests for interpretation. Ignoring them is avoiding responsibility, but we don't need the mass of email.

Meissner: It's unusual for X3J3 to be in this mode - there is a lull in the workload, there is no future work yet - so that it can spend an entire meeting processing interpretations.

Undecided on suggestion that subgroups chase around correlating and tracking email. There seems to be other work e.g, WG5 comments formally on NULLIFY statement, and it doesn't seem to be listed in the open issues and can't be responded to until X3J3 considers it.

Bierman: Who distils the email? Subgroup, plenary committee? Who will ask folks answering questions to form them more tightly, or if they are happy with the response? We can formulate answers to these questions.

Oglesby: Seconds Bierman's comments.

Mattoon: Email answers can be long and confusing - one person may disagree with one detail of the answer while agreeing with the rest. Perhaps the email originator who disagrees with a detail of a point by point response should submit a formal request.

Tait: It seems X3J3 doesn't want the all of the email compendium and that individuals on X3J3 will submit formal requests distilled from email.

Wagener: Hearing several arguments we have had before - similar to the the interim procedures suggested in 92-027. It seems X3J3 has come to a consensus which is not dissimilar.

Moss: How do subgroups proceed for this meeting?

Wagener: Subgroups will have to use judgement.

Chair's Ruling: The procedures in effect are those specified in 92-027.

3.6 Interpretations Processing - August 5

Discussion Leader: Andrew Tait

Weaver: I object to papers being placed on the table which are revisions of papers from the last meeting and which are given numbers from that meeting instead of for this meeting. Do I put these papers with this meeting's papers or last meeting's papers?

3.7 Response to the POSIX Request

Discussion Leader: Jerry Wagener

References: 92-128 and 92-141

Discussion: [Several edits were suggested. The response will be revised and brought back later.]

3.8 SD-3 for the Next Revision of Fortran

Discussion Leader: Jerry Wagener

References: 92-142

Wagener: This paper represents the start of our new SD-3. I am looking for help in creating the entries for this.

Bierman: We should find a way to have one corrigenda.

Wagener: I believe that we can release an ANSI document which just points to the ISO corrigenda and this will serve as the ANSI corrigenda.

Hirchert: Is Fortran 95 an appropriate project title? The ISO project is titled Fortran and we should title ours the same.

Moss: The current SD-3 rules describe I-type project as if the US is initiating an international project. We should call the appropriate people to determine if there are any special requirements in our case. In section 5 we should list X3H5, HPF, etc.

Weaver: The fact the ISO/IEC SC22/WG5 has delegated the project to X3J3 should be noted.

J. Martin: We should note that the project is shared; X3J3 is only doing the development.

Wagener: We should note that an ISO project already exists.

Leonard: If at all possible, we should get this to SPARC for their next meeting.

Lahey: I would like you to quote WG5 resolution V9 in this.

B. Martin: We should call the project Fortran 95. We started this trend with FORTRAN 77. Section 5.1 should list the ISO standards and not just the ANSI ones.

Lahey: We should put a year in the title, but it should be as accurate as possible.

Wagener: I must look into the procedure to determine if we need a letter ballot to forward this to SPARC.

3.9 Compiler Directives

Discussion Leader: Dick Weaver

References: 92-124

Weaver: It was good to see HPF using this format.

Bierman: We should not be doing this - we should be trying to stamp out directives.

Maine: I like the idea but I disagree with mucking up the comment syntax.

Hoffert: We should look at the work done previously at the implementation symposia.

Tait: I disagree with Keith; it is a well established practice for Fortran.

Lahey: I would like a special character for column 1 to indicate directives.

Weaver: I will send this to David Muxworthy for inclusion in the WG5 bindings document.

Bierman: The current approach is inconsistent between implementations and is not portable.

3.10 R&R Document

Discussion Leader: Jerry Wagener

References: X3J3/S14.122

[This is the first draft of the responses to WG5's Victoria resolutions.]

Weaver: The response to V11 should indicate the willingness of Jerry and Jeanne to work together to establish the correct procedures in order to get the job done.

[This will come back later in the meeting.]

3.11 Interpretations Processing - August 6

3.11.1 CIO

Motion: (Bleikamp/Kelble) Accept 92-074 [unresolved issue 16]

Action: motion passed by a vote of (22-2)

Discussion: 92-145 is withdrawn and the current version of S20 item 4 stands.

Motion: (Bleikamp/Leonard) Accept 92-149 [unresolved issue 17]

Straw Vote: The edit in this paper should be amended with text to add a change to section 1.4.1 stating that this is a difference with FORTRAN 77. (19-2-1)

Action: amended motion passed by a vote of (20-3)

3.11.2 DATA

Motion: (Moss/O'Gara) Accept 92-083a [unresolved issue 19]

Action: motion passed by a vote of (18-2)

3.11.3 GEN

Motion: (Hendrickson/Lahey) Accept 92-088a [unresolved issues 32 and 33]

Action: motion passed by a vote of (24-0)

Motion: (Hendrickson/Lahey) Accept 92-147 [unresolved issues 1 and 26]

Action: motion passed by a vote of (22-1) after 2 minor edits

Motion: (Hendrickson/Lahey) Accept 92-148

Action: motion withdrawn for further edits

Motion: (Hendrickson/Lahey) Accept 92-151 [unresolved issue 35]

Action: motion passed by a vote of (25-0) after 2 minor edits

3.11.4 PROC

Discussion of 92-154: This is a rewrite of S20 item 13. [Several edits were suggested.]

Straw Vote: Are you generally in favor of this interpretation? (19-0-6)

Discussion of 92-155: This recombines S20 items 7 and 8 into one item which we propose to be called S20 item 7. [Several edits were suggested.]

Discussion of 92-157: [This will be voted on tomorrow.]

Motion: (Hirchert/Hoffert) Accept 92-157 [unresolved issue 30]

Action: motion passed by a vote of (22-0) with minor edits.

Motion: (Hirchert/Maine) Accept 92-158 [unresolved issue 116]

Action: motion passed by a vote of (19-3) with minor edits.

Motion: (Hirchert/Hoffert) Accept 92-159 [unresolved issue 20]

Discussion: [There were several objections to passing this for the reason that it really doesn't fix anything.]

Action: motion failed by a vote of (9-12).

Motion: (Hirchert/Steidel) Accept 92-160 [unresolved issue 31]
Action: motion passed by a vote of (23-0) with minor edits.
Motion: (Hirchert/Maine) Accept 92-161 [unresolved issue 34
Action: motion passed by a vote of (23-0) with minor edits.
Discussion of 92-162: [This will be redone and brought back tomorrow.]

3.12 CLIP Review

This item was deferred until the next meeting.

3.13 JOD Report

This item was deferred until the next meeting.

3.14 Response to the POSIX Request

References: X3J3/92-141a
Motion: (O'Gara/Bierman) Accept the X3J3 response to the POSIX report.
Action: motion passed by a vote of (19-0)

3.15 Intent to Proceed with the Revision

Motion: (Hoffert/Maine): X3J3 wishes to proceed with a 1995-96 revision of the Fortran 90 standard, in conjunction with SC22/WG5 and in accordance with the WG5 strategic plan (WG5/SD-4) and WG5 resolution V13 (July 1992), and instructs the X3J3 Chair to prepare and secure the necessary SD-3 project authorization.
Action: motion passed by a vote of (23-0)

3.16 Report on the BSR Meeting

[This was a report by Jerry Wagener on his conversation with Lynn Barra.]

- Beth Sommerville of ANSI put together the Fortran 90 ballot package and raised the following comment: This looks like a revision of FORTRAN 77 and you can't approve this unless you withdraw the FORTRAN 77 standard.
- Fortran 90 was not on the BSR agenda as we had believed.
- Fortran 90 is currently undergoing a letter ballot within ANSI which closes on August 28. If there are no negative ballots, it automatically becomes a standard.
- X3 letter ballot 2115 on the X3H5 Fortran 90 bindings closes on September 3.
- X3H5 is pressuring for email distributions to be considered official.

3.17 Interpretations Processing - August 7

3.17.1 CIO

Motion: (Bleikamp/Lauson) Accept 92-168 [unresolved issue 36]
Action: motion passed by a vote of (17-0)
Motion: (Bleikamp/Kelble) Accept 92-169 [unresolved issue 88]
Action: motion passed by a vote of (20-0)
Motion: (Bleikamp/Lauson) Accept 92-171 [unresolved issue 91]
Action: motion passed by a vote of (22-0)
comment: unresolved issue 45 fixed by the minor edits paper.

3.17.2 DATA

Motion: (Steidel/J. Martin) Accept 92-153a [unresolved issues 29 and 43]
Action: motion passed by a vote of (17-2)
Motion: (O'Gara/Moss) Accept 92-165 [unresolved issues 89 and 71]
Action: motion passed by a vote of (19-2)
Motion: (Moss/Steidel) Accept 92-167 [change to S20 item 31]
Action: motion withdrawn until later in the day
Motion: (Moss/Tait) Accept 92-136 [WG5 N815-3 - change to S20 item 27]
straw: accept as is? (1-20-3)
straw: permit or prohibit zero-sized arrays in the associated function? (13-1-9)
straw:
Choice 1: zero-sized arrays are always associated
Choice 2: zero-sized arrays are never associated

Choice 3: some other solution
Choice 4: undecided
vote: (1-1-21-2)
Action: motion withdrawn
comment: 92-136 [WG5 N815-8 - unresolved issue 118] will not be brought to the committee
Motion: (Moss/J. Martin) Accept 92-136 [WG5 N815-9 - unresolved issues 119 and 121]]
Action: motion failed by a vote of (9-11)
straw: should this go back to the subgroup for reconsiderations or should we consider this item settled? (4-16-2)
Motion: (O'Gara/J. Martin) Accept 92-172 [change to S20 items 12 and 23 - unresolved issues 7 and 9]
Action: motion passed by unanimous consent
Motion: (Moss/O'Gara) Accept 92-167a [change to S20 item 31]
Weaver: This item shouldn't be passed at this meeting as we haven't had adequate time to review it.
straw: Do agree with the sense of 92-167a? (21-0-3)

3.17.3 GEN

Motion: (Weaver/Lahey) Accept 92-148a
Action: motion passed as amended by unanimous consent
Motion: (Weaver/Lahey) Accept 92-164 first set of edits
Action: motion passed by a vote of (17-4)
Motion: (Weaver/Lahey) Accept 92-164 second set of edits
Action: motion withdrawn
Motion: (Weaver/Lahey) Accept 92-176
Action: motion passed as amended by unanimous consent

3.17.4 PROC

comment: Unresolved issues 103, 104, 106, 107, 108, 109, and 110 are all comments on S20 items and have either been addressed by other items or have been rejected by the subgroup.
comment: 92-166 is information for the S20 editor.
Motion: (Hirchert/Bierman) Accept 92-154a [revision of S20 item 13 - unresolved issue 24]
Action: motion passed as amended by a vote of (20-1)
Motion: (Hirchert/Hoffert) Accept 92-155a [unresolved issue 22]
Action: motion passed by unanimous consent
Motion: (Hirchert/Ellis) Accept 92-156a [unresolved issue 21]
Action: motion passed by a vote of (20-3)
Motion: (Hirchert/Hoffert) Accept 92-162a [unresolved issue 95]
Action: motion passed as amended by unanimous consent
Motion: (Hirchert/Ellis) Accept 92-170 [unresolved issue 4]
Action: motion passed by unanimous consent
Motion: (Hirchert/Ellis) Accept 92-174 [combines S20 items 38, 39, and 40]
Action: motion passed by unanimous consent
Motion: (Hirchert/Ellis) Accept 92-173 [unresolved issue 100]
Action: motion passed by unanimous consent
Motion: (J. Martin/Weaver) Accept 92-152 [except for item 255/42]
Action: motion passed by unanimous consent
comment: Item 255/42 will be handled at the next meeting.

3.17.5 Interpretations Summary

Tait: We started the meeting with 69 unresolved issues. During the meeting, 52 were added and 67 to 70 were closed. This leaves us with 51 to 54 unresolved issues.

3.18 X3J3 SD-1 Replacement

Wagener: 92-177 is a start. I will submit a paper for the next meeting.

3.19 R & R Document S14.122

Motion: (Hoffert/Tait) Accept responses to WG5 resolutions in S14.122
  Motion: (Ellis/Maine) Amend to delete references to V10
  Action: Accepted.
Action: motion passed by unanimous consent
Motion: (Weaver/Moss) Delete X3J3 Resolution 92-01
  Motion: (Kelble/Philips) Amend to keep the motion but change "WG5" to "WG5 Management Committee"
  Action: withdrawn
Action: motion passed by unanimous consent
Motion: (Weaver/Ellis) Delete X3J3 Resolution 92-02
Action: motion passed by a vote of (19-1)

4 Closing Business

4.1 Comments from Members

Weaver: I would like to thank Andrew Tait for his work on S20.
Weaver: The night before the last day should be reserved as a work night and not used for other activities.
Weaver: The position of secretary should be filled or it should begin rotating.

4.2 Membership Report

Hoffert: We have lost 2 members (Rich Ragan and Rick Swift) as they did not attend this meeting. This leaves us with 31 members none of whom are in jeopardy of losing their membership.

4.3 Treasurer's Report

Discussion Leader: Mallory North
Motion: (Lahey/Moss) Excuse John Reid from paying the meeting fee.
Action: motion passed by unanimous consent
North: 31 attendees should have paid the fee. At this point 30 have paid.
Lahey: Lahey Computer Systems would be willing to bond Jerry and Mallory instead of X3J3 paying the bonding fees.
Weaver: The meeting fee should be raised.
straw: Raise the meeting fee to $90 from $80 (18-2)
Motion: (North/Lahey) Change the meeting fee to $100
  Motion: (Moss/Ellis) Amend the motion to raise the fee to $90
  Action: motion failed by a vote of (4-11)
Action: motion passed by a vote of (15-4)

4.4 Adjournment

Wagener: I would like to thank Jose and Microsoft for hosting the meeting.

5 Document Lists

5.1 Current Standing Documents

X3J3/S8.118	Fortran 8X, April 1991.
X3J3/S14.122	Annual ISO/TC97/SC22/WG5 resolutions and X3J3 resulting actions.
X3J3/S15.121	Summary of X3J3 membership policies and procedures (to appear). The latest draft is document 108-10 (X3J3/222, p. 27)
X3J3/S17	Journal of Development. The first version is Appendix F of S8.104, June 1987.
X3J3/S20.122	Approved and Draft Interpretations

5.2 1992 Document Register

Item Number		Page Number
X3J3/92-000	Hoffert/MBSH-0/Register of Documents	0
X3J3/92-001	Adams/JCA-1/30-Day Letter Ballot on Boeing NO	1

5.3 1992 Documents By Meeting

5.3.1 Meeting 121 Documents

The documents for meeting 121 are X3J3/92-000 through X3J3/92-120.

5.3.2 Meeting 122 Documents

The documents for meeting 122 are X3J3/92-121 through X3J3/92-178. In addition, revisions of documents X3J3/92-027,083, and 088 were distributed.

6 Committee Organization

6.1 Officers

Chair	Jerrold Wagener
Vice Chair	Maureen Hoffert
International Rep.	Ivor Philips
Secretary	to be appointed
Librarian	Linda O'Gara
Editor	Walter Brainerd
Defect Management	Andrew Tait
Vocabulary Rep.	Kurt Hirchert

6.2 Liaison Assignments

Data Interchange, X3T2	Presley Smith
Database, X3H2	Presley Smith
IEEE POSIX, Fortran binding	to be appointed
BSI Fortran Group	Miles Ellis
Parallel Processing, X3H5	Jon Steidel

6.3 Subgroups

GEN (General Concepts)
  Hendrickson (head), Lahey, Lauer, Marusak, Philips, Swift, Weaver, Whitlock
DATA (Data Concepts)
  Katz, Martin, Meissner, Millard, Moss, O'Gara, Ragan, Rolison, Steele
CIO (Control Constructs and Input/Output)
  Brainerd, Kelble, Lauson, Leonard, Mattoon, Oglesby, Smith
PROC (Procedures and Program Units)
  Bierman, Ellis, Himer, Hirchert (head), Hoffert, McConnell, North
JOD (Journal of Development)
  Bierman (head), Hoffert, Meissner, Millard

The subgroup organization is under review and will likely change in the near future to a more effective structure for developing the 1995-96 revision.

7 Future Meetings and Distribution Assignments

Four Meeting Schedule for 1993: Meeting conventions:

- 4 meetings per year
- attempt to schedule second full week of month
- attempt to schedule meetings back to back with WG5 meetings

123 Nov. 9-13, 1992 - New Haven, CT (Lauer, host)
pre-meeting distribution deadline: October 5, 1992
pre-meeting distribution: Weaver
post-meeting distribution: Rolison

124 Feb. 8-12, 1993 - Fort Lauderdale, FL (Leonard, host)
pre-meeting distribution deadline:
pre-meeting distribution: Leonard
post-meeting distribution: Hoffert

125 May 10-14, 1993 - University of Illinois (Hirchert, host)
pre-meeting distribution deadline:
pre-meeting distribution: Tait
post-meeting distribution: Katz

126 July 12-16, 1993 - Brussels (Hendrickson, host)
(Following the WG5 Meeting, July 5-9 in Bavaria)
pre-meeting distribution deadline:
pre-meeting distribution: Hirchert
post-meeting distribution: Marusak

127 Nov. 8-12, 1993 - Albuquerque, NM (Lauson, host)
pre-meeting distribution deadline:
pre-meeting distribution: Mattoon
post-meeting distribution: Swift

128 February, 1994 - (Bierman, host)
pre-meeting distribution deadline:
pre-meeting distribution: Bierman
post-meeting distribution: Steele

8 Membership

8.1 Meeting Attendance

X3J3 Meeting Attendance
X3J3 Principal Members

	Meeting #	14	15	16	17	18	19	20	21	22	23	24	25
	Location	TX	NV	OX	NM	MN	NH	CA	IN	WA	CT	??	??
	Date	01	04	08	12	04	08	11	05	08	11	??	??
		90	90	90	90	91	91	91	92	92	92	93	93
Name	Affiliation												
Bierman, Keith	Sun	I	I	I	I	I	V	V	V	V			
Brainerd, Walt	Unicomp							P	V	A			
Ellis, Miles	Oxford	V	V	V	A	V	V	V	A	V			
Hendrickson, Dick	ACRI	V	V	V	V	V	A	A**	V**	V			
Himer, Jim	Esso Canada		P		V	A	A	V**	V	A			
Hirchert, Kurt	Univ. Illinois	V	V	A	A	V	V	V	V	V			
Hoffert, Maureen	HP	V	V	V	V	V	V	V	V	V			
Katz, Henry	DOD	V	V	A	A	V	V	V	V	V			
Kelble, Rich	Unisys	I	I	I	A	I	V	V	A	V			
Lahey, Tom	Lahey	V	V	V	A	V	V	V	V	V			
Lauer, Rochelle	DECUS*	V	V	R	V	V	V	V	A	R			
Lauson, Herrick								V	V	V			
Leonard, Bill	Harris	V	V	A	A	V	R	A	R	V			
Martin, Jeanne	Livermore	V	V	V	V	V	V	V	V	V			
Marusak, Alex	Los Alamos	V	V	V	V	V	V	A	V	V			
Mattoon, David	Assoc. RR	P	V	A	A	V	V	A	V	V			
Maine, Richard	NASA							P	V	V			
Meissner, Loren	USF	V	A	A	V	V	R	V	A	V			
Millard, Geoff	Edinburgh	R	V	R	A	A	V	V	A	V			
Moss, Len	SLAC	V	V	A	A	V	V	V	A	V			
North, Mallory	RHI	V	V	A	V	A	V	V	V	V			
O'Gara, Linda	SSI	V	V	V	V	V	V	V	A	V			
Oglesby, Jose	Microsoft	I	I	A	A	I	V	R	R	V			
Philips, Ivor	Boeing	V	V	V	V	V	A	V	V	V			
Ragan, Rich	CDC	V	R	A	R	R	A	V	A**	A***			
Rolison, Larry	Cray*	I	I	I	I	I	I	R	R	R			
Smith, Presley	CONVEX	V	R	A	A	R	R	A	R	R			
Steele, Guy	Think Mach.*	A	A	R	R	A	A	R**	R	R			
Swift, Rick	MasPar				P	V	A	V	A**	A***			
Tait, Andrew	Amdahl	V	V	V	V	V	A	V	V	V			
Wagener, Jerry	Amoco	V	V	V	V	V	V	V	V	V			
Weaver, Dick	IBM*	V	V	V	V	V	A	R	V	V			
Whitlock, Stan	DEC	A	V	V	V	V	V	V	V	A			

V present and voting
R absent but represented
A absent and not represented
P present but not voting
I institution represented
* institutional member
** missed 2 of last 3 meetings
*** LOST membership

Total Membership: 31

Lost Members:
Ragan, Rich (CDC)
Swift, Rick (MasPar)

Alternates Representing principals at meeting:
Rich Bleikamp, Convex
David Philimore, Thinking Machines
Joel Rose, DECUS
Jon Steidel, Cray Research

Visitors at Meeting:
Bruce Martin, Loren Meissner's alternate
Al Mong, Ivor Philips' alternate
Aurelio Pollicini, WG5
John Reid, WG5
Janice Shepherd, Dick Weaver's alternate

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