TO: John Lohmeyer, Chairman, X3T9.2 Committee (SCSI)

From: Dennis Pak
          IEEE P1285 Liaison to X3T9.2/DADI
          Apple Computer

Date: December 7, 1992

Subject: Second Grass Roots Meeting Minutes between X3T9.2 and IEEE P1285

To: Membership of Grass Roots

From: Lawrence J. Lamers, Secretary
         Martin Freeman, Moderator

Subject: Minutes of October 1, 1992 Grass Roots Meeting

Final Agenda

1. Opening Remarks
2. Attendance and Membership
3. Liaisons
4. Charter
5. Reports on Current Projects

Results of Meeting

1. Opening Remarks

Jim McGrath of Quantum convened the second Grass Roots Meeting on 1:30 PM, Thursday, October 1, 1992. Martin Freeman took the role of moderator and thanked Jim McGrath for hosting the meeting. Larry Lamers agreed to act as secretary for the meeting.

As is customary, the people attending introduced themselves. A copy of the attendance list was circulated for attendance and corrections.

Martin Freeman felt that the DADI/P1285 Grass Roots Meetings were Ad-Hoc meetings to discuss areas of mutual concern. The consensus of that meeting participants was that the Grass Roots Meetings are advisory in nature and, as such, no votes or motions are taken.

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The minutes of this meeting will be posted to the Grass Roots reflector within 14 calendar days. Information can be transmitted to members of the Grass Roots reflector by sending it to "grass-roots@apple.com". People who want to receive information from the reflector should send a message to "teener@apple.com" and request their e-mail address be added to the Grass Roots reflector broadcast list.

2.   Attendance and Membership

The following folks attended this meeting:

    Martin Freeman - Philips Research
    Chris Hamlin   - Apple
    Dennis Pak   - Apple
    Jim McGrath   - Quantum
    Larry Lamers   - Maxtor
    David James   - Apple

3.   Liaisons

Martin Freeman summarized the progress to date on establishing liaisons with other organizations. He stated that a letter to PCMCIA to offer coordination through liaison had not yet been sent, but would be sent in the near future. Jim McGrath requested that Small Form Factor (SFF) be added to the list of organizations that a liaison is established with.

Currently Appointed Liaisons -

    P1285 to X3T9.2 - Dennis Pak
    X3T9.2 to P1285 - open

    P1285 to P1394 - David James
    P1394 to P1285 - David James

    P1285 to PCMCIA - not requested yet
    PCMCIA to P1285 - not requested yet

    P1285 to SFF   - not requested yet
    SFF to P1285   - not requested yet

Dennis Pak requested a discussion on the role of a liaison. The first consensus reached was that liaisons should attend the Grass Roots meetings. This obligation needs to be made clear to the liaison when they are appointed.

The group felt that the duties of a liaison are to attend the meetings of the

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organization they are appointed to liaise with and to prepare a report on issues relevant to the organization they are representing. They should also be prepared to offer advice on inter-organization Thematters and areas of their expertise. Martin Freeman pointed out that the IEEE Standards Manual states that the primary function of a liaison in a standards making situation is use his technical expertise in the making of the standard.

Larry Lamers pointed out that establishing liaisons with appropriate other groups was very desireable. The committee felt that if possible, each liaison role should be filled by a different individual. It was also felt desirable to increase the breath of the company affiliations of the appointed liaison representatives.

4.   Charter

What is the role of Grass Roots? This discussion was a fall-out from the previous one on liaisons.

It was agreed that while the initial objective established by Don Loughry of having a grass roots discussion on issues relating to the DADI project and the P1285 project was met, additional grass roots meetings would be necessary.

The group worked on a charter statement for consideration by X3T9 and IEEE MSC. The consensus on a possible charter statement was: Grass Roots Meetings should be held at least three times per year to establish and maintain communication between X3T9 and IEEE MSC. These meetings will discuss areas of overlap in the work underway and the work expected to be undertaken in both committees, and receive reports from liaisons on the progress of work.

Although there was a consensus on a charter statement, some participants express interest in only the communication between P1285 and DADI and could not justify participating in a more general role.

5.   Reports on Current Projects

5.1 PCMCIA

The 3-volt vs 5-volt issues were reported on and the need for physical keying. The CardBus project was of interest to the X3T9 participants. It was noted that PCMCIA is not an accredited standards organization.

5.2 DADI

It was reported that Scott Smyers has offered withdraw CCU in favor of the IBM/DEC/APPLE proposal for SBP. However, there are members of X3T9.2 that

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want to develop DADI, but not necessarily CCU. David James stated that the SCI has taken a look at CCU and believes that it has merit and it may find a home there. The IEEE P1595/SCI working group likes the multiple processor, multiple I/O and memory sharing features of CCU.

5.3 P1394

It was reported that the 8b10b coding scheme has been dropped in favor of using SGS Thomson's DS encoding scheme. There was also considerable debate at the last P1394 meeting on the two meter cable length.

5.4 RamLink

RamLink is similar to RamBus, a memory access bus currently being used to increase the efficiency of accessing memory. RamBus uses a proprietary synchronous access technique. RamLink is a point to point interface that supports split transactions. There is only one master in the system.

5.5 P1285

P1285 is working on a two level memory interface that is applicable to many types of non-volatile memory including disk drive memory and flash memory. The discussion of the interface is significantly affected by an assumption that a buffer or cache is present. What happens to the interface if a microprocessor is directly connected to the non-volatile m emory unit as it may be in a handheld device? The first step is to develop an abstraction so a control structure can be conceived based on time and motion.

An abstraction is intended to define low level functions for motion and time. Symbols passed over the interface initiate the functions. The interface is explicitly designed for scaling real time behavior.

Chris Hamlin explained that the work is progressing at two levels. What differentiates the levels is cost and function.

The alpha (lower) level is a simplification with respect to the fundamental areas of time, motion (if applicable), and encoding but is still abstract enough that it could be used on different types of memory units units. The objective is to get direct control over time at low cost. This could be useful in PDAs or aggregate memory units in array configurations. The alpha level specification would form the basis of the higher layer.

The beta (higher) level provides more services for the host, thereby increasing the cost and performance of the device. The beta level looks like memory, but can deal with delayed access. Some type of pre-fetch hints embedded within commands is being investigated. The beta level is not currently envisioned as a

DMA master.

There was a lively debate on how this work impacted the intended work on the DADI project. It turns out that this general approach to a memory interface might also solve issues that disk drive manufacturers are now becoming aware of in the way a storage device, its medium, and its controller interaction with the central microprocessor. Everyone agreed on the need to do work in this latter area.

Martin Freeman suggested that a tutorial be given at the proposed co-located meeting on November 12, 1992 in Sunnyvale, CA. After this follow-up discussions are needed in both groups. The January Grass Roots Meeting would address issues raised.

6.   Future Meetings

The next grass roots meeting is will be scheduled during the week of January 25, 1993.