

SCIENCE AND ENGINEERING RESEARCH COUNCIL
RUTHERFORD APPLETON LABORATORY

COMPUTING DIVISION

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CAMBRIDGE RING COMPONENT STANDARDS
Report on the Ring Component Standards Meeting
at RAL on 2nd Mar 82

Issued by
W P Sharpe

10 March 1982

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Report on the Cambridge Ring Component Standards Meeting
held at Rutherford Appleton Laboratory on 2nd Mar 1982.

Present:

W P Sharpe (Chairman)
M Cole, Logica VTS Ltd
S Wilbur, UCL
R Van der Hoorn, Orbis Computers Ltd
A W K Erasmuson, SEEL
K S Heard, JNT
A R Cash, RAL
R Lowndes, Camtec Electronics
S Hayes, Toltec Computers Ltd
G Wilson, GEC Computers
M E Jones, Data Recall
J Rance, Racal Milgo Ltd
P E Bryant, RAL
M J Norton, British Telecom
J M Yeomans, Urwick Nexos
A Brittain, Swindon Silicon Systems

K Fermor, RAL (Notes)

Apologies were received from Prof Wheeler.

SESSION 1

1. MINUTES OF PREVIOUS MEETING

The minutes were accepted.

2. SLOTTED RING STANDARD PROPOSAL

2.1 Representation and Organisation

- (1) Mr Sharpe reported on conversations held with the chairman and secretary of BSI OIS.6, Mr J Holdsworth and Mr J Purton. They had suggested that the draft proposal be forwarded for the attention of OIS.6 who would pass it to their Study Group 1 for consideration. This could lead to BSI taking an interest, but it was pointed out that BSI generally only support activities that are already under consideration as international standards.

It was agreed therefore that BSI should not initially be expected to be a contributor of effort, but that they should be kept informed of each stage of the standards work.

- (2) To progress the proposal it was agreed that there should be two meetings: on 19th March contributions to the next draft of the proposal will be discussed and collated; this will produce a document that can be circulated and discussed by a wider group on 31st March. To this meeting will be invited all the organisations who are expected to be interested in the work. Mr Yeomans, as a member of the FOCUS LAN team, is able to supply a list of contacts; Mr Sharpe will circulate the letter of invitation.

2.2 Progression of Proposal

2.2.1 Management

Since BSI will not be able to provide management other alternatives were considered. It is expected that two levels of management will be needed: at the top will be representatives of all funding bodies, beneath it will be a technical executive. The activity will be widely distributed and some central management will be vital: it might be appropriate to involve NCC; the micro support centres may provide a useful model. Mr Sharpe will write to FOCUS outlining the requirement and requesting support.

2.2.2 Relation to Other Standards Activities

- (1) ECMA are attempting to influence IEEE 802 and are hoping to resolve incompatibilities between them and DIX.
- (2) Any attempt to influence 802 in favour of slotted rings will be fruitless until there is substantial political weight behind some definite proposals. It was suggested however that an appropriate use of funds would be to support attendance at relevant sessions of 802 (eg those on internetworking) and other standards bodies to establish the contacts for promoting this work at the appropriate

time.

- (3) PROWAY, which relates the needs of process control to networking may provide useful reference material in the study of requirements.

2.2.3 Manpower and Funding

It is not expected that the interested organisations will alone be able to provide all the necessary manpower and some use of consultancy services is therefore expected. Mr Yeomans reported that FOCUS had contacts with several organisations wishing to develop LANs who wished to pool their resources. The use of a two tier central management (2.2.1) would help resolve problems that might otherwise arise if particular organisations were to directly fund various aspects of the standards activity.

No funding will be forthcoming until a firm proposal has been formulated and there is likely to be considerable work until that point is reached; such work can be costed as a contribution to the total funding.

2.2.4 Outline Structure

The outline structure of the standard was discussed with a view to assigning responsibility for producing input to the next draft.

- (1) IEEE 802 is only applicable for speeds up to 20 Mbps, the specific advantages of slotted rings appear at higher speeds. While making these points the proposal should not put in a specific figure for the target.
- (2) Mr Rance will provide an expanded consideration of the expected relation of the standard to the layers of the IEEE 802 reference model.
- (3) Mr Yeomans will draw on the work of FOCUS to provide an analysis of user needs in the office environment as they relate to the standard. He will also provide some information on PROWAY. There was disagreement on whether the suitability of slotted rings for synchronous communications should be related explicitly to the possibility of carrying voice. SERC will provide input on the relevance of the standard to their future LAN requirements.
- (4) Mr Cash reported that he will be undertaking some computer modelling of cascaded phase lock loops during the next 6 months. He will prepare a short summary of the intended work, which can be adapted to suit the needs of the standard. It was pointed out that it could not be assumed that the techniques for a high speed ring would have much in common with those of the current generation.
- (5) The importance of considering network administration and operational convenience at all stages was stressed. BT will make a contribution to this section by the end of March. It was observed that rings have certain intrinsic merits with respect to error notification and handling; a statement of requirements in this section will provide input to the section on media access.

- (6) The section on WANs was included to indicate the importance of maintaining contact with WAN developments, particularly in the area of addressing. This is an area that might be best served by involvement with the IEEE 802 activity.

NEXT MEETINGS

10.00 am Fri 19th March
Atlas Centre, RAL

Thur 31st March, 1982
Venue to be announced

SESSION 2 - INTERIM STANDARD

1. LINE LEVEL SPECIFICATION

Orbis reported that they still had not been able to obtain satisfactory ULAs from Ferranti and that they might be considering changing manufacturer if the next iteration did not meet the specification. The difficulty lies in the VCO and should be solvable by the use of a faster substrate.

In the following notes the figures in square brackets refer to sections in the second draft of the specification.

- (1) [3.2] Transmission line impedance should read 90 - 150. the second sentence of para 3 was disputed and is therefore removed.
- (2) [3.3] Permitted error rate. The statements here which put limits on the worst case behaviour of mixed equipment in a minimal ring configuration give a false impression of normal ring performance. Mr Cash will attempt to find a way of expressing the needs of a testing criteria and normal performance adequately.
- (3) [3.4] The term "controlling" is to replace "signalling" throughout. The specification will not require a relay but will permit any device with the correct functionality. There was some discussion of whether a change in slave power supply impedance should be made to allow powering over a greater range; Mr Cash agreed to consider the feasibility and implications of this.
- (4) [3.5.2] Screens should be decoupled.
- (5) [3.5.3] A cable resistance value will be inserted.
- (6) [3.5.4] For "impedance" read "characteristic impedance".
- (7) [3.5.6] The GND connections are to be removed. This pin out was accepted as the final version.
- (8) [3.6] This section is explanatory only and will be placed in an appendix in the final document.
- (9) [3.7] This section will be amended to separate more clearly the explanatory material from the parameter specifications. Mr Cash was congratulated on the quality of his work in providing a sound basis for the specification of compatibility. Adequate test facilities exist to measure any new ring equipment against the specification.
- (10) [3.8.1] There is some doubt concerning ULA response to ring traffic when delaying the response to unsuccessful transmissions. The delay should be related to gap preceded by empty minipacket.
- (11) [3.8.2(iv)] No justification is available for the choice of 2.5 sec for the Monitor holding time. This time must allow all the slave PSUs to reach full output and any transient oscillatory conditions in the PLLs to disappear. Polynet uses a delay of only 1.25 secs,

but until there is more information the specification will not be changed.

- (12) [3.9 para 3] Delete "and clocks". The specification requires a Monitor to hold START mode indefinitely during the second half of a RESTART sequence, until ring continuity is restored. there was doubt as to whether all existing implementations conform.
- (13) [3.9] There is doubt whether 128 errors of any type will trigger a restart, or only framing errors.
- (14) [3.9] The allocation of error type 7 to flag automatic restart is new. Precisely when such an error packet should be transmitted is problematical. This will either be clarified or removed.
- (15) [Fig 11] Vsig is required for capacitor decoupler to achieve the best RFI performance.

2. STATION INTERFACE

Logica and Orbis had not provided any update to these interfaces. In addition to the points outstanding from the last meeting the following issues were raised:

- (1) It was suggested at the last meeting that the absence of direct signals in the 100 way i/f to correspond with ones on the 50 way meant that some timings on the 50 way should be relaxed. If this is the case then minimum throughput of the 50 way must be specified and conforming products should state performance.
- (2) It was proposed that a third alternative for powering stations directly from the mains be allowed.
- (3) Stations will be required to determine the number of circulating minipackets automatically.
- (4) There will be no specifications on the precise mechanisms (visibility, security etc) used for setting station addresses.

The deadline for resolving the outstanding issues is the next meeting. editorial work is expected to take 3-4 weeks after that.

NEXT MEETING

Tues 9th March 1982
Venue - to be announced.