MUMPS Development Committee

Extension to the MDC Standard
Type A Release of the MUMPS Development Committee

Leading Zero Interpretation in $FN

January 1995

Produced by the MDC Task Group #17
Interpretations

Ed de Moel, Chairman
MUMPS Development Committee

Kate Schell, Chairman
MDC Task Group #17

The reader is hereby notified that the following MDC specification has been approved by the MUMPS Development Committee but that it may be a partial specification that relies on information appearing in many parts of the MDC Standard. This specification is dynamic in nature, and the changes reflected by this approved change may not correspond to the latest specification available.

Because of the evolutionary nature of MDC specifications, the reader is further reminded that changes are likely to occur in the specification released, herein, prior to a complete republication of the MDC Standard.

1. Identification

1.1 Title

Leading Zero Interpretation in $FN

1.2 MDC Proposer and Sponsor

Proposer
Task Group 17
Interpretations
Chair: Kate Schell

Sponsor
Frederick L. Hiltz
Brigham and Women's Hospital
10 Vining Street
Boston, MA 02115-6198
617-732-7028
FORUM: HILTZ,FREDERICK
Internet: fhiltz@bics.bwh.harvard.edu

1.3 Motion

None. This document supersedes X11/TG17/94-7.

1.4 History

29 Jan 95	X11/TG17/94-7	Accepted by MDC.
13 Dec 94	X11/TG17/94-7	Accepted by the Interpretations Task Group.

1.5 Dependencies

This interpretation applies to ANSI/MDC X11.1-1990 and ANSI X11.1-1994 Canvass Version 1.

Proposals that depend on this proposal: none.

2. Justification of the Interpretation

2.1 Needs

National Institute of Standards and Technology (NIST) has questioned whether the following sentence in the description of the three-argument form of $FN, ANSI/MDC X11.1-1990 clause 2.2.7.6, applies to the two-argument form of $FN as well. (X11/94-44, problem statement ID#44, "Leading Zero Ambiguity in the $FNUMBER Function.")

> Note: if (-1 < numexpr < 1), the result of $FN has a leading zero ("0") to the left of the decimal point.

2.2 Existing Practice in Area of the Interpretation

2.2.7.6 describes the two-argument form of $FN(numexpr , fncodexpr):

> . . . returns a value which is an edited form of numexpr. . . .
>
> If fncodexpr equals an empty string, no special formatting is performed and the result of the expression is the original value of numexpr.

2.2.3.1 Numeric Data Values:

> f. The number zero is represented by the one-character string "0".
>
> h. The representation of each positive number less than 1 consists of a "." followed by a nonempty digit string with no trailing zero. (This is called a *fraction*.)

2.2.4 defines the form of negative numbers as a transformation of positive numbers.

2.2.7.6 describes the three-argument form of $FN:

> This form is identical to the two-argument form of $FN, except that numexpr is rounded to intexpr fraction digits, including possible trailing zeros, before processing any fncodatoms. If intexpr is zero, the evaluated numexpr

> contains no decimal point. Note: if (-1 < numexpr < 1), the result of $FN has a leading zero ("0") to the left of the decimal point.

The 1994 MDC standard, ANSI X11.1 Canvass Version 1, contains the same wording.

2.3 Justification

2.2.7.6 says for the two-argument form that there shall be no leading zero when (-1 < numexpr < 1) and fncodexpr equals the empty string. Absent any mention of the leading zero in specifying the editing actions of other values of fncodexpr, consistency requires no leading zero for all values of fncodexpr.

Furthermore, the specification of the leading zero in the three-argument form of $FN occurs in a paragraph describing the differences between the three-argument and the two-argument forms.

3. Description of the Interpretation

3.1 General Description of the Interpretation

Interprets two-argument $FN to return no leading zero when (-1 < numexpr < 1).

3.2 Annotated Examples of Use

None.

3.3 Formalization

The MDC interprets clause 2.2.7.6 of ANSI/MDC X11.1 - 1990 and clause 7.1.5.6 of ANSI X11.1-1994 Canvass Version 1, $FNUMBER as though they contained the text:

> The value of $FN(numexpr , fncodexpr) shall be the value of numexpr transformed by the editing actions specified by the fncodatoms in fncodexpr.

4. Implementation Effects

4.1 Effect on Existing User Practices and Investments

Routines that depend on behavior different from this interpretation require change.

4.2 Effect on Existing Vendor Practices and Investments

Implementations that produce behavior different from this interpretation require change.

4.3 Techniques and Costs for Compliance Verification

This interpretation agrees with the conformance test MVTS V.8.2 from MUMPS Systems Laboratory as quoted in the NIST question (see 2.1) and its accompanying letter to the MDC.

4.4 Legal Considerations

The NIST question arises from different interpretations of the 1990 standard by Micronetics Design Corporation and by MUMPS Systems Laboratory. Should the matter come before the MUMPS Standards Interpretation Review Board, Dr. Hiltz will, as sponsor of this interpretation, excuse himself from sitting on the board during its review.

5. Closely Related Standards Activities

5.1 Other X11 Proposals Under Consideration

None.

5.2 Other Related Standards Efforts

None.

5.3 Recommendations for Coordinating Liaison

None.

6. Associated Documents

None.

7. Issues, Pros and Cons, and Discussion

None.