

Enterprise PL/I for z/OS  
6.2

*Messages and Codes*



## **Second Edition (December 2025)**

This edition applies to Version 6 Release 2 of IBM® Enterprise PL/I for z/OS® (program number 5655-PL6) and to all subsequent releases and modifications until otherwise indicated in new editions. Make sure that you are using the correct edition for the level of the product.

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# About this book

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This book is for PL/I programmers and system programmers. It helps you understand compiler and preprocessor messages.

## Compiler and preprocessor messages

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This guide lists the compiler messages in numerical order. These messages are also listed in numerical order in the output following the source program and in any other listings produced by the compiler.

### Format of messages

**In your compilation output**, each compiler message, with the exception of the code generation messages in the range 5000-5999, starts with IBMnnnnI X where:

- IBM indicates that the message is a PL/I message.
- nnnn is the number of the message.
- The closing letter I indicates that no system operator action is required.
- The X represents a severity code.

In some catastrophic situations, such as not being able to open SYSPRINT, the compiler might not follow the last two of the preceding rules.

**In this guide, messages are listed numerically.** Each compiler message in this section has the form IBMnnnnI X where X is the severity code.

Severity codes can be any of the following: I, W, E, S, or U.

These severity codes indicate the following. (Note that the return codes listed are the highest return code generated.)

#### I

An **informational** message (RC=0) indicates that the compiled program should run correctly. The compiler might inform you of a possible inefficiency in your code or some other condition of interest.

#### W

A **warning** message (RC=4) warns you that a statement might be in error (warning) even though it is syntactically valid. The compiled program should run correctly, but might produce different results than expected or be significantly inefficient.

#### E

An **error** message (RC=8) describes a simple error fixed by the compiler. The compiled program should run correctly, but might produce different results than expected.

#### S

A **severe** error message (RC=12) describes an error not fixed by the compiler. If the program is compiled and an object module is produced, it should not be used.

#### U

An **unrecoverable** error message (RC=16) signifies an error that forces termination of the compilation. An object module is not successfully created.

Compiler messages are printed in groups according to these severity levels and to the component that produced them.

The code generation messages (those in the range 5000-5999) start with IBMnnnn where:

- IBM indicates that the message is a PL/I message.
- nnnn is the number of the message.

Under batch, the code generation messages are written to the STDOUT DD data set, while all other messages appear in the listing which is written to the SYSPRINT DD data set. Under z/OS UNIX, the code generation messages are written to stdout, while all other messages appear in the listing and are also written to stdout.

The compiler FLAG option suppresses the listing of messages in the compiler listing. You can find a description of the FLAG option in *Enterprise PL/I for z/OS Programming Guide*.

## Message inserts

Many of the compiler messages contain message inserts indicating where the compiler inserts information when it prints the message. These inserts are emphasized in the messages in this section using *italics*.

## Contacting IBM for support

If you contact IBM for programming support for a compiler error, it is useful to have a listing of your source program available. To make the analysis of any potential problem easier, it is best if that listing is created with the options: INSOURCE MACRO OPTIONS SOURCE.

## How to send your comments

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Your feedback is important in helping us to provide accurate, high-quality information.

If you have comments about this document or any other PL/I documentation, send an email to [Compilers@ibm.com](mailto:Compilers@ibm.com).

Be sure to include the name of the document, the publication number of the document, the version of PL/I, and, if applicable, the specific location (for example, page number) of the text that you are commenting on.

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

## Accessibility

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Accessibility features assist users who have a disability, such as restricted mobility or limited vision, to use information technology content successfully. The accessibility features in z/OS provide accessibility for Enterprise PL/I.

### Accessibility features

z/OS includes the following major accessibility features:

- Interfaces that are commonly used by screen readers and screen-magnifier software
- Keyboard-only navigation
- Ability to customize display attributes such as color, contrast, and font size

z/OS uses the latest W3C Standard, WAI-ARIA 1.0 (<http://www.w3.org/TR/wai-aria/>), to ensure compliance to US Section 508 (<https://www.access-board.gov/ict/>) and Web Content Accessibility Guidelines (WCAG) 2.0 (<http://www.w3.org/TR/WCAG20/>). To take advantage of accessibility features, use the latest release of your screen reader in combination with the latest web browser that is supported by this product.

### Keyboard navigation

Users can access z/OS user interfaces by using TSO/E or ISPF.

Users can also access z/OS services by using IBM Developer for z/OS.

For information about accessing these interfaces, see the following publications:

- [\*z/OS TSO/E Primer\*](#)
- [\*z/OS TSO/E User's Guide\*](#)
- [\*z/OS ISPF User's Guide Volume I\*](#)
- [\*IBM Developer for z/OS Documentation\*](#)

These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

## **Interface information**

The Enterprise PL/I online product documentation is available in IBM Documentation, which is viewable from a standard web browser.

PDF files have limited accessibility support. With PDF documentation, you can use optional font enlargement, high-contrast display settings, and can navigate by keyboard alone.

To enable your screen reader to accurately read syntax diagrams, source code examples, and text that contains the period or comma PICTURE symbols, you must set the screen reader to speak all punctuation.

Assistive technology products work with the user interfaces that are found in z/OS. For specific guidance information, see the documentation for the assistive technology product that you use to access z/OS interfaces.

## **Related accessibility information**

In addition to standard IBM help desk and support websites, IBM has established a TTY telephone service for use by deaf or hard of hearing customers to access sales and support services:

TTY service  
800-IBM-3383 (800-426-3383)  
(within North America)

## **IBM and accessibility**

For more information about the commitment that IBM has to accessibility, see [IBM Accessibility](http://www.ibm.com/able) ([www.ibm.com/able](http://www.ibm.com/able)).





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# Chapter 1. Compiler Informational Messages (1000-1076, 2800-2999)

---

**IBM1018I I**      *option-name* should be specified within **OPTIONS**, but is accepted as is.

## Explanation

This message is used in building the options listing.

---

**IBM1035I I**      The next statement was merged with this statement.

## Explanation

The statement following the statement for which this message was issued were merged with that statement.

---

**IBM1036I I**      The next *statement-count* statements were merged with this statement.

## Explanation

The specified number of statements following the statement for which this message was issued were merged with that statement.

---

**IBM1038I I**      *note*

## Explanation

This message is used to report back end informational messages.

---

**IBM1039I I**      Variable *variable name* is implicitly declared.

## Explanation

All variables should be declared except for contextual declarations of built-in functions, SYSPRINT and SYSIN.

---

**IBM1040I I**      *note*

## Explanation

This message is used by %NOTE statements with a return code of 0.

---

**IBM1041I I**      Comment spans *line-count* lines.

## Explanation

A comment ends on a different line than it begins. This may indicate that an end-of-comment delimiter is missing.

---

**IBM1042I I**      String spans *line-count* lines.

## Explanation

A string ends on a different line than it begins. This may indicate that a closing quote is missing.

---

**IBM1043I I**      *variable name* is contextually declared as *attribute*.

## Explanation

There is no declare statement for the named variable, but it has been given the indicated attribute because of its usage. For instance, if the variable is used as a locator, it will be given the POINTER attribute.

---

**IBM1044I I**      **FIXED BINARY** with precision 7 or less is mapped to 1 byte.

## Explanation

The OS/370 PL/I and PL/I for MVS compilers would have mapped this to 2 bytes.

---

**IBM1046I I**      **UNSPEC** applied to an array is handled as a scalar reference.

## Explanation

The OS/370 PL/I and PL/I for MVS compilers would have handled UNSPEC applied to an array as an array of scalars.

---

**IBM1047I I**      **ORDER** option may inhibit optimization.

## Explanation

If the ORDER option applies to a block, optimization is likely to be inhibited, especially if the block contains ON-units that refer to variables declared outside the ON-unit.

---

**IBM1048I I**      **GET/PUT DATA** without a data-list inhibits optimization.

## Explanation

A GET DATA statement can alter almost any variable, and a PUT DATA statement requires almost all variables to be stored home anytime a PUT DATA statement might be executed. Both of these requirements inhibit optimization.

---

**IBM1050I I**      **INITIAL attribute for RESERVED STATIC is ignored.**

---

## Explanation

The INITIAL attribute has been specified for a variable with the attributes RESERVED STATIC. Unless such a variable is listed in the EXPORTS clause of a PACKAGE statement, the variable will not be initialized.

---

**IBM1051I I**      **Argument to *BUILTIN* name built-in function may not be byte aligned.**

---

## Explanation

This message applies to the ADDR, CURRENTSTORAGE/SIZE and STORAGE/SIZE built-in functions. Applying any one of these built-in functions to an unaligned bit variable may not produce the results you expected.

---

**IBM1052I I**      **The NODESCRIPTOR attribute is accepted even though some arguments have \* extents.**

---

## Explanation

When a string with \* extent or an array with \* extents is passed, PL/I normally passes a descriptor so that the called routine knows how big the passed argument really is. The NODESCRIPTOR attribute indicates that no descriptor should be passed; this is invalid if the called routine is a PL/I procedure.

```
dcl x entry( char(*), fixed bin(31) )
      options( nodestructor );
```

---

**IBM1053I I**      **Scaled FIXED operation evaluated as FIXED DECIMAL.**

---

## Explanation

If one of the built-in functions ADD, DIVIDE, MULTIPLY or SUBTRACT is invoked with argument that have type FIXED, if either operand has a non-zero scale factor, the result will have type FIXED DEC.

---

**IBM1058I I**      **Conversion from *source type* to *target type* will be done by library call.**

---

## Explanation

This message can be used to help find code that may be very expensive if executed as part of a loop or to find code involving conversions of unlike types.

---

**IBM1059I I**      **SELECT statement contains no OTHERWISE clause.**

---

## Explanation

The ERROR condition will be raised if no WHEN clause is satisfied.

---

**IBM1060I I**      **Name resolution for *identifier* selected its declaration in a structure, rather than its non-member declaration in a parent block.**

---

## Explanation

The PL/I language rules require this, but it might be a little surprising. In the following code fragment, for instance, the display statement would display the value of x.y.

```
a: proc;

    dcl y fixed bin init(3);

    call b;

    b: proc;

        dcl
            1 x,
            2 y fixed bin init(5),
            2 z fixed bin init(7);

        display( y );

    end;

end a;
```

---

**IBM1061I I**      **Probable DATE calculation should be examined for validity after the year 1999.**

---

## Explanation

Use of any of the constants 365, 1900 or '19' may indicate a date calculation. If this is true, you should examine the calculation to determine if it will be valid after the year 1999.

---

**IBM1062I I**      ***variable* inferred to contain a two-digit year.**

---

## Explanation

The indicated was inferred to contain a two-digit year because, for example, it was assigned the DATE built-in function.

---

**IBM1064I I      Use of OPT(2) forces TEST(BLOCK).**

## Explanation

Under OPT(2), any specification of TEST hooks stronger than TEST(BLOCK) is not supported.

---

**IBM1065I I      FLOAT constant *constant* would be more precise if specified as a long FLOAT.**

## Explanation

The named short floating-point constant cannot be exactly represented. It could be more accurately represented if it were specified as a long floating-point constant. For example, the 1.3E0 cannot be exactly represented, but could be better represented as 1.3D0.

---

**IBM1067I I      UNTIL clause ignored.**

## Explanation

If a DO specification has no clause such as TO, BY or REPEAT that could cause the loop to be repeated, then the UNTIL clause will have no effect on the loop and will be ignored.

```
do x = y until ( z > 0 );  
  ..  
end;
```

---

**IBM1068I I      PROCEDURE has no RETURNS attribute, but contains a RETURN statement. A RETURNS attribute will be assumed.**

## Explanation

If a procedure contains a RETURN statement, it should have the RETURNS attribute specified on its PROCEDURE statement.

```
a: proc;  
  return( 0 );  
end;
```

---

**IBM1069I I      The AUTOMATIC variables in a block should not be used in the prologue of that block.**

## Explanation

The AUTOMATIC variables in a block may be used in the declare statements and the executable statements of any contained block, but in the block in which they are declared, they should be used only in the executable statements.

```
decl x fixed bin(15) init(5);  
decl y(x) fixed bin(15);
```

---

**IBM2800I I      The PROCEDURE *proc name* is not referenced.**

## Explanation

The named procedure is not external and is never referenced in the compilation unit. This may represent an error (if it was supposed to be called) or an opportunity to eliminate some dead code.

---

**IBM2801I I      FIXED DEC(*source-precision,source-scale*) operand will be converted to FIXED BIN(*target-precision,target-scale*). This introduces a non-zero scale factor into an integer operation and will produce a result with the attributes FIXED BIN(*result-precision,result-scale*).**

## Explanation

Under RULES(IBM), when an arithmetic operation has an operand that is FIXED BIN and an operand that is FIXED DEC with a non-zero scale factor, then the FIXED DEC operand will be converted to FIXED BIN.

---

**IBM2802I I      Aggregate mapping will be done by library call.**

## Explanation

This message can be used to help find code that may be very expensive if executed as part of a loop. It may be produced, for example, if your code refers to an element of a structure that uses REFER. If the structure uses multiple REFERs and the element occurs after the last REFER, the single reference to that element may produce multiple copies of this message (because multiple library calls will be made).

---

**IBM2803I I      *keyword* STRING EDIT statement optimized.**

## Explanation

This message is issued when a PUT or GET STRING EDIT statement has been optimized by the compiler so that most of it is done inline.

---

<b>IBM2805I I</b>	<b>For assignment to <i>variable name</i>, conversion from <i>source type</i> to <i>target type</i> will be done by library call.</b>
-------------------	---

---

## Explanation

This message can be used to help find code that may be very expensive if executed as part of a loop or to find code involving conversions of unlike types.

---

<b>IBM2806I I</b>	<b>Passing a LABEL to another routine is poor coding practice and will cause the compiler to generate less than optimal code.</b>
-------------------	---

---

## Explanation

It is generally very unwise to pass a label to another routine. It would be good to think about redesigning any code doing this.

---

<b>IBM2809I I</b>	<b>FIXED DEC(<i>source-precision,source-scale</i>) operand will be converted to FIXED BIN(<i>target-precision,target-scale</i>). This introduces 8-byte integer arithmetic into an operation that might be faster if computed in decimal.</b>
-------------------	---

---

## Explanation

If the LIMITS option specifies a maximum FIXED precision greater than 31, then an operation involving a FIXED DEC and a FIXED BIN operand might produce an 8-byte integer result even if both operands are "small". For example, if you add a FIXED DEC(13) and a FIXED BIN(31), the result would be an 8-byte integer (because a FIXED DEC(13) value might be too large to fit in a 4-byte integer). To avoid this, you could apply the DECIMAL built-in function to the FIXED BIN operand.

---

<b>IBM2810I I</b>	<b>Conversion of FIXED BIN(<i>source-precision,source-scale</i>) to FIXED DEC(<i>target-precision,target-scale</i>) may produce a more accurate result than under the old compiler.</b>
-------------------	---

---

## Explanation

In certain conversions of FIXED BIN(p,q) to FIXED DEC, the old compiler slightly rounded the result if q was positive.

---

<b>IBM2812I I</b>	<b>Argument number <i>argument number</i> to BUILTIN name built-in function would lead to much better code if declared with the VALUE attribute.</b>
-------------------	--

---

## Explanation

For functions such as VERIFY(x,y), if y is a constant, it is much better for performance to declare y with the VALUE attribute rather than with the INITIAL attribute.

---

<b>IBM2814I I</b>	<b>Aggregate mapping for storage allocation will be done by library call.</b>
-------------------	---

---

## Explanation

This message can be used to help find code that may be expensive if invoked many times. This message may be produced for ALLOCATE statements for BASED and CONTROLLED variables with non-constant extents, and it may also be produced for the prologue of PROCEDURES that use AUTOMATIC variables with non-constant extents.

---

<b>IBM2815I I</b>	<b>Argument number <i>argument-number</i> in ENTRY reference ENTRY name is not recommended to be passed BYVALUE.</b>
-------------------	--

---

## Explanation

A BYVALUE argument should be one that could reasonably be passed in a register. Hence its type should be either one of REAL FIXED BIN, REAL FLOAT, POINTER, OFFSET, HANDLE, LIMITED ENTRY, FILE, ORDINAL, CHAR(1), WCHAR(1), or ALIGNED BIT(n) with n less than or equal to 8.

---

<b>IBM2816I I</b>	<b>BYVALUE parameters should ideally be ones that can reasonably be passed in registers.</b>
-------------------	--

---

## Explanation

A BYVALUE parameter should be one that could reasonably be passed in a register. Hence its type should be either one of REAL FIXED BIN, REAL FLOAT, POINTER, OFFSET, HANDLE, LIMITED ENTRY, FILE, ORDINAL, CHAR(1), WCHAR(1), or ALIGNED BIT(n) with n less than or equal to 8.

---

**IBM2817I I** **BYVALUE in RETURNS is recommended only for types that can reasonably be returned in registers.**

### Explanation

Using BYVALUE in RETURNS is recommended only if the value to be returned has a type that could reasonably be returned in a register. Hence its type should be either one of REAL FIXED BIN, REAL FLOAT, POINTER, OFFSET, HANDLE, LIMITED ENTRY, FILE, ORDINAL, CHAR(1), WCHAR(1), or ALIGNED BIT(n) with n less than or equal to 8.

---

**IBM2818I I** **Addition or subtraction of FIXED DEC(*precision,scale-factor*) and FIXED DEC(*precision,scale-factor*) may raise FIXEDOVERFLOW.**

### Explanation

The precision required to hold the result as defined by PL/I of this add (or subtract) is greater than the LIMITS(FIXEDDEC) maximum for the operands and hence depending on the data values, FIXEDOVERFLOW may be raised by the operation.

---

**IBM2819I I** **Multiplication of FIXED DEC(*precision,scale-factor*) and FIXED DEC(*precision,scale-factor*) may raise FIXEDOVERFLOW.**

### Explanation

The precision required to hold the result as defined by PL/I of this multiply is greater than the LIMITS(FIXEDDEC) maximum for the operands and hence depending on the data values, FIXEDOVERFLOW may be raised by the operation.

---

**IBM2820I I** **The *option-name* option is not supported on this platform.**

### Explanation

The named compiler option is not supported on this platform. For example, the BLKOFF option is an option on the z/OS platform, but not on AIX or Windows. If specified on those platforms, it is ignored.

---

**IBM2825I I** **Conversion from *source type* to *target type* will be done by library call.**

### Explanation

This message can be used to help find code that may be very expensive if executed as part of a loop or to find code involving conversions of unlike types.

---

**IBM2826I I** **For assignment to *variable name*, conversion from *source type* to *target type* will be done by library call.**

### Explanation

This message can be used to help find code that may be very expensive if executed as part of a loop or to find code involving conversions of unlike types.

---

**IBM2827I I** **Conversion from *source type* to *target type* can produce an inexact or incorrect result.**

### Explanation

For example, the conversion of the FLOAT DEC(15) value 321.1234 to FIXED DEC(15,15) will produce the inexact result 0.123399999999952. However, the conversion of the FLOAT DEC(15) value 54321.1234 to FIXED DEC(15,15) will produce the incorrect result 0.372036854775807. Incorrect results can be avoided in a conversion to FIXED DEC(p,q) if the absolute value of the source is less than 10\*\*(18-p).

---

**IBM2830I I** **VALUE(: *type name* :) will return an instance of the structure type that is only partially initialized.**

### Explanation

If the VALUE type function is applied to a structure type which has an initial attribute on only some of its elements, then the structure instance will be only partially initialized. For example, the compiler will flag the following code with this message because B2 has no initial value - it will have the initial values from type a only if B2 is also declared with the attribute init( value(: a : ) ).

```
if ( a < b ) = true then

define structure
1 a,
2 a1 fixed bin(31) init( 17 ),
2 a2 fixed bin(31) init( 19 );

define structure
1 b,
2 b1 fixed bin(31) init( 119 ),
2 b2 type a;

dcl x type b;
```

```
x = value(: b :);
```

**IBM2831I I**      **ASSERT statement may never be executed.**

### Explanation

This message warns that the compiler has detected an ASSERT UNREACHABLE statement that can never be run as the flow of control must always pass it by.

**IBM2832I I**      **INLINE directive will be ignored for *procedure name* and all other PROCEDURES since the TEST option is on.**

### Explanation

The compiler will perform no inling if the TEST option is on.

**IBM2833I I**      **INLINE directive will be ignored for *procedure name* since it contains ENTRY statements.**

### Explanation

The compiler will not inline a PROCEDURE that has ENTRY statements.

**IBM2834I I**      **INLINE directive will be ignored for *procedure name* since it contains nested PROCEDURES and/or BEGIN blocks.**

### Explanation

The compiler will not inline a PROCEDURE or BEGIN block that contains other PROCEDURES or BEGIN blocks.

**IBM2835I I**      **INLINE directive will be ignored for *procedure name* since it has OPTIONS(NODESCRIPTOR), but has some parameters with nonconstant extents.**

### Explanation

The compiler will not inline a PROCEDURE that requires has the NODESCRIPTOR option but would normally be passed descriptors with its arguments.

**IBM2836I I**      **INLINE directive will be ignored for *procedure name* since it contains labels that may be targets of out-of-block GOTOs.**

### Explanation

The compiler will not inline a PROCEDURE that which has any labels that are possibly the target of a GOTO from another PROCEDURE or BEGIN block.

**IBM2837I I**      **INLINE directive will be ignored for *procedure name* since it contains some DATA-directed I/O statements.**

### Explanation

The compiler will not inline a PROCEDURE that has any PUT DATA or GET DATA statements.

**IBM2838I I**      **INLINE directive will be ignored for *procedure name* since it has non-default condition enablement.**

### Explanation

The compiler will not inline a PROCEDURE that has any condition enablement that differs from the default.

**IBM2839I I**      **INLINE directive will be ignored for *procedure name* since it contains ON-units.**

### Explanation

The compiler will not inline a PROCEDURE that has any ON statements.

**IBM2840I I**      **If TRANSLATE is being used to reformat a date-time value, it would be better to use the REPATTERN or DATETIME built-in function instead.**

### Explanation

If the first and third arguments to the TRANSLATE built-in function are both constant, then the code is likely trying to reformat a date-time value. This code would be easier to understand if the REPATTERN built-in function or, if possible, the DATETIME built-in function were used instead. For example, the first two bits of code below assign the same value to the target variable shortdate, and the second two bits of code also assign the same value to the target variable currentdate. However, in each case, the second statement is much clearer.

```
shortdate
  = translate( '12.34.5678',
              longdate,
              '56783412abcdefghijkl' );

shortdate
```

```

= repattern( longdate,
             'DD.MM.YYYY',
             'YYYYMMDDHHMISS999' );

currentdate
= translate( '12.34.5678',
             datetime(),
             '56783412abcdefghijk1' );

currentdate
= datetime( 'DD.MM.YYYY' );

```

**IBM2841I I** Changing MEMCONVERT(p,n,1200,q,m,1208) to MEMCU12(p,n,q,m) would be better for performance.

### Explanation

MEMCU12 will perform much better than MEMCONVERT.

**IBM2842I I** Changing MEMCONVERT(p,n,1208,q,m,1200) to MEMCU21(p,n,q,m) would be better for performance.

### Explanation

MEMCU21 will perform much better than MEMCONVERT.

**IBM2844I I** The characters *characters* will be accepted as two separate characters. It would be better to separate these characters with a blank.

### Explanation

This may represent a problem especially if this occurs in an assignment statement and += was meant instead of =+.

**IBM2845I I** The characters *characters* will be accepted as two separate characters. It would be better to separate these characters with a blank.

### Explanation

This may represent a problem especially if this occurs in an assignment statement and -= was meant instead of =-.

**IBM2846I I** It would be better to convert nested PROCEDURES in a PACKAGE into sister nonnested PROCEDURES.

### Explanation

The compiler issues this message if a compilation unit contains a PACKAGE statement with exactly one level-1 procedure which in turn has its own nested procedures.

**IBM2847I I** Source in RETURN statement has a MAXLENGTH of *return-length* which is greater than the length of *returns-length* in the corresponding RETURNS attribute.

### Explanation

If a RETURNS statement specifies a VARYING or VARYINGZ variable with a MAXLENGTH greater than the length specified in the RETURNS attribute, then it may have a value that is too big to be returned without truncation. For example, the variable X in the RETURNS statement below has a value ('TooBig') that has length greater than 4. It will be trimmed (to 'TooB') to fit the RETURNS attribute.

```

x: proc returns( char(4) );
   dcl x char(8) var;
   x = 'TooBig';
   return( x );

```

**IBM2848I I** ADD of FIXED DEC(x-precision,x-scale) and FIXED DEC(y-precision,y-scale) with a result precision and scale of (result-precision,result-scale) might overflow.

### Explanation

In ADD(x,y,p,q), if the precisions of x and y are large enough compared to p (and q), then overflow or size might be raised.

**IBM2851I I** CEIL will be evaluated by computing the integral quotient and if the quotient is nonnegative, rounding it up by one if the remainder is non-zero.

### Explanation

Note that this will occur even if the quotient would have the attributes FIXED BIN(p,0) in which case no rounding would be possible. For example, if x is FIXED BIN(31), then (x/2) would have the attributes FIXED BIN(31). If x equals 7, then (x / 2) would have the value 3, and if x equals -7, then (x / 2) would have the value -3. However, if x is 7, CEIL( x / 2 ) will yield 4, and if x is -7, CEIL( x / 2 ) will yield -3,

---

**IBM2852I I**      **FLOOR will be evaluated by computing the integral quotient and if the quotient is not positive, rounding it down by one if the remainder is non-zero.**

### Explanation

Note that this will occur even if the quotient would have the attributes FIXED BIN(p,0) in which case no rounding would be possible. For example, if x is FIXED BIN(31), then (x/2) would have the attributes FIXED BIN(31). If x equals 7, then (x / 2) would have the value 3, and if x equals -7, then (x / 2) would have the value -3. However, if x is 7, FLOOR(x / 2) will yield 3, and if x is -7, FLOOR(x / 2) will yield -4.

---

**IBM2853I I**      **If *bifname* is being used to reformat a date-time value, it would be better to use the DATETIME built-in function with the appropriate pattern instead.**

### Explanation

The use of SUBSTR, LEFT, and RIGHT would be easier to understand if the the DATETIME with the appropriate pattern were used instead, and it might also be less problematic. For example, the first pair of statements below assign the same value to the target variable thedate, and the second pair of statements also assign the same value to the target variable currentdate. However, in each case, the second statement is much clearer. Moreover, in the second pair, the first assignment could produce an erroneous

value if the datetime invocations were not all on the same day.

```
thedata = substr( datetime(), 1, 8 );
thedata = datetime( 'YYYYMMDD' );

current
= substr( datetime(), 7, 2 )
  || '.' || substr( datetime(), 5, 2 )
  || '.' || substr( datetime(), 1, 4 );

currentdate = datetime( 'DD.MM.YYYY' );
```

---

**IBM2854I I**      **The parameter to MAIN should be declared as NONASSIGNABLE or INONLY.**

### Explanation

The storage allocated to the parameter to MAIN should not be changed, and the NONASSIGNABLE or INONLY attributes should be used to check for violations of this rule.

---

**IBM2855I I**      **Evaluation of the *name* built-in function will be done by library call.**

### Explanation

This message can be used to help find code that may be very expensive if executed as part of a loop or to find code where date-time functions will not be done via inline code (because, for example, the date-time pattern is not a constant).



## Chapter 2. Compiler Warning Messages (1078-1225, 2600-2799)

**IBM1078I W** Statement may never be executed.

### Explanation

This message warns that the compiler has detected a statement that can never be run as the flow of control must always pass it by.

**IBM1079I W** Too few arguments have been specified for the ENTRY *ENTRY name*.

### Explanation

The number of arguments should match the number of parameters in the ENTRY declaration.

**IBM1080I W** The keyword *label-name*, which could form a complete statement, is accepted as a label name, but a colon may have been used where a semicolon was meant.

### Explanation

A PL/I keyword which could form a complete statement has been used as statement label. This usage is accepted, but a colon may have been used where a semicolon was intended.

```
dcl a fixed bin(31) ext;

if a = 0 then
  put skip list( 'a = 0' )
else:
  a = a + 1;
```

**IBM1081I W** *keyword expression* should be scalar. Lower bounds assumed for any missing subscripts.

### Explanation

The expression in the named keyword clause should be a scalar, but an array reference was specified.

```
dcl p      pointer;
dcl x      based char(10);
dcl a(10) area(1000);

allocate x in(a) set(p);
```

**IBM1082I W** Argument number *argument-number* in ENTRY reference *entry name* is a scalar, but its declare specifies a structure.

### Explanation

A scalar may be passed as the argument when a structure is expected, but this requires building a "dummy" structure and assigning the scalar to each field in that structure.

```
dcl e entry( 1 2 fixed bin(31), 2 fixed
bin(31) );
dcl i fixed bin(15);
call e( i );
```

**IBM1083I W** Source in label assignment is inside a DO-loop, and an illegal jump into the loop may be attempted. Optimization will also be very inhibited.

### Explanation

GOTO statements may not jump into DO loops, and the compiler will flag any GOTO whose target is a label constant inside a (different) DO loop. However, if a label inside a DO loop is assigned to a label variable, then this kind of error may go undetected.

**IBM1084I W** Nonblanks after right margin are not allowed under RULES(NOLAXMARGINS).

### Explanation

Under RULES(NOLAXMARGINS), there should be nothing but blanks after the right margin.

**IBM1085I W** *variable* may be unset when used.

### Explanation

The indicated variable may not have been assigned or initialized a value before it is used.

**IBM1086I W** *built-in function* will be evaluated using long rather than extended routines.

## Explanation

The indicated built-in function has an extended float argument, but since the corresponding extended routine is not yet available, it will be evaluated using the appropriate long routine.

---

**IBM1087I W      FLOAT source is too big for its target. An appropriate HUGE value of assumed value is assumed.**

---

## Explanation

A value larger than HUGE(1s0) cannot be assigned to a short float. Under hexadecimal float, the value 3.141592E+40 could be assigned to a short float, but under IEEE, the maximum value that a short float can hold is about 3.40281E+38.

---

**IBM1088I W      FLOAT literal is too big for its implicit precision. The E in the exponent will be replaced by a D.**

---

## Explanation

The precision for a float literal is implied by the number of digits in its mantissa. For instance 1e99 is implicitly FLOAT DECIMAL(1), but the value 1e99 is larger than the largest value a FLOAT DECIMAL(1) can hold.

---

**IBM1089I W      Control variable in DO loop cannot exceed TO value, and loop may be infinite.**

---

## Explanation

If the TO value is equal to the maximum value that a FIXED or PICTURE variable can hold, then a loop dominated by that variable will run endlessly unless exited inside the loop by a LEAVE or GOTO. For example, in the first code fragment below, x can never be bigger than 99, and the loop would be infinite. In the second code fragment below, y can never be bigger than 32767, and the loop would be infinite.

```
decl x pic'99';

do x = 1 to 99;
  put skip list( x );
end;

decl y fixed bin(15);

do y = 1 to 32767;
  put skip list( y );
end;
```

---

**IBM1090I W      Constant used as locator qualifier.**

---

## Explanation

An expression contains a reference to a based variable with a constant value for its locator qualifier. This may cause a protection exception on some systems. It may also indicate that the variable was declared as based on NULL or SYSNULL and that this constant value is being used as its locator qualifier.

```
decl a fixed bin(31) based( null() );

a = 0;
```

---

**IBM1091I W      FIXED BIN precision less than storage allows.**

---

## Explanation

Except in unusual circumstances, the precision in a FIXED BIN declaration should be 7, 15, 31 or 63 if SIGNED and one greater if UNSIGNED. This message may indicate that a declare specified, for example, FIXED BIN(8) when UNSIGNED FIXED BIN(8) was meant.

---

**IBM1092I W      GOTO whose target is or may be in another block severely limits optimization.**

---

## Explanation

Try to change the code so that it sets and tests a switch instead, or limit GOTOs to very small modules that do not need optimization.

---

**IBM1093I W      PLIXOPT string is invalid. See related runtime message message-number.**

---

## Explanation

The PLIXOPT string could not be parsed. See the cited LE message for more detail.

---

**IBM1094I W      Element *option* in PLIXOPT is invalid. See related runtime message message-number.**

---

## Explanation

The PLIXOPT string contains an invalid item. See the cited LE message for more detail.

---

**IBM1095I W      Element *option* in PLIXOPT has been remapped to *option*. See related runtime message message-number.**

---

## Explanation

The PLIXOPT string contains a run-time option which is not supported by LE. See the cited LE message for more detail.

---

**IBM1096I W**      **STAE and SPIE in PLIXOPT is not supported. See related runtime message *message-number*.**

---

## Explanation

The SPIE and STAE options have been replaced by the TRAP option. TRAP(ON) is equivalent to SPIE and STAE; TRAP(OFF) is equivalent to NOSPIE and NOSTAE. The combination SPIE and NOSTAE and the combination NOSPIE and STAE are no longer supported. See the cited LE message for more detail.

---

**IBM1097I W**      **Scalar accepted as argument number *argument-number* in ENTRY reference *ENTRY name* although parameter description specifies an array.**

---

## Explanation

Generally, scalars should not be passed where arrays are expected, but in some situations, this may be what you want.

```
    dcl a entry( (*) fixed bin )
    option(nodescriptor);

    call a( 0 );
```

---

**IBM1098I W**      **Extraneous comma at end of statement ignored.**

---

## Explanation

A comma was followed by a semicolon rather than by a valid syntactical element (such as an identifier). The comma will be ignored in order to make the semicolon valid. This warning level message is issued regardless of the RULES(LAXPUNC) setting.

```
    dcl 1 a, 2 b fixed bin, 2 c fixed bin, ;
```

---

**IBM1099I W**      **FIXED DEC(*source-precision,source-scale*) operand will be converted to FIXED BIN(*target-precision,target-scale*). Significant digits may be lost.**

---

## Explanation

Under RULES(IBM), when a comparison or arithmetic operation has an operand that is FIXED BIN and an operand that is FIXED DEC with a non-zero scale factor, then the FIXED DEC operand will be converted to FIXED BIN. Under RULES(ANS), when a comparison or arithmetic operation has an operand that is FIXED BIN and an operand that is FIXED DEC with a zero scale factor, then the FIXED DEC operand will be converted to FIXED BIN. In each case, significant digits may be lost, and if there is a fractional part, it may not be exactly represented as binary. For instance, under RULES(IBM), the assignment statement below will cause the target to have the value 29.19, and in the comparison, C will be converted to FIXED BIN(31,10) and significant digits will be lost (in fact, SIZE would be raised, but since it is disabled, this program would be in error).

```
    dcl a fixed dec(07,2) init(12.2);
    dcl b fixed bin(31,0) init(17);
    dcl c fixed dec(15,3) init(2097151);
    dcl d fixed bin(31,0) init(0);

    a = a + b;

    if c = d then;
```

---

**IBM1100I W**      **The attribute *attribute-option* is not valid on BEGIN blocks and is ignored.**

---

## Explanation

An attribute (REDUCIBLE in the example below) has been specified in the OPTIONS clause on a BEGIN statement, but that attribute is not valid for BEGIN blocks.

```
    begin options( reducible );
```

---

**IBM1101I W**      ***option-name* is not a known PROCEDURE attribute and is ignored.**

---

## Explanation

An attribute (DATAONLY in the example below) has been specified in the OPTIONS clause on a PROCEDURE statement, but that attribute is not valid for PROCEDURES.

```
    a: proc options( dataonly );
```

**IBM1102I W**      *option-name* is not a known BEGIN attribute and is ignored.

### Explanation

The indicated attribute is valid on PROCEDURE statements, but not on BEGIN statements.

```
begin recursive;
```

**IBM1103I W**      *option-name* is not a supported compiler option and is ignored.

### Explanation

The compiler option is not supported on this platform.

```
*process map;
```

**IBM1104I W**      Suboptions of the compiler option *option-name* are not supported and are ignored.

### Explanation

Suboptions of the compiler option are not supported on this platform.

```
*process list(4);
```

**IBM1105I W**      A suboption of the compiler option *option-name* is too long. It is shortened to length *number-of-letters*.

### Explanation

Various compiler options have limits on the size of subfields. Refer to the Programming Guide for the limits of specific compiler options.

```
*process margini( '+-' );
```

**IBM1106I W**      Condition prefixes on *keyword* statements are ignored.

### Explanation

Condition prefixes are not allowed on DECLARE, DEFAULT, IF, ELSE, DO, END, SELECT, WHEN or OTHERWISE statements.

```
(nofofl): if (x+y) > 0 then
```

**IBM1107I W**      *option-name* is not a known ENTRY statement attribute and is ignored.

### Explanation

An attribute (DATAONLY in the example below) has been specified in the OPTIONS clause on an ENTRY statement, but that attribute is not valid for ENTRY statements.

```
a: entry options( dataonly );
```

**IBM1108I W**      The character *char* specified in the *option* option is already defined and may not be redefined. The redefinition will be ignored.

### Explanation

A character specified in the OR, NOT, QUOTE or NAMES compiler option is already defined in the PL/I character set or by another compiler option.

```
*process not('=');  
*process not('!' ) or('!' );
```

**IBM1109I W**      The second argument in the C-format item will be ignored.

### Explanation

If you wish to display the real and imaginary parts of a complex number using different formats, use the REAL and IMAG built-in functions and 2 format items.

```
put edit ( x ) ( c( e(10,6), e(10,6) ) );
```

**IBM1110I W**      The INCLUDE statement should be on a line by itself. The source on the line after the INCLUDE statement is ignored.

### Explanation

Split the text into 2 lines.

```
%include x; %include y;
```

**IBM1111I W**      CHECK prefix is not supported and is ignored.

## Explanation

The CHECK prefix is not part of the PL/I language.

```
(check): i = j + 1;
```

---

**IBM1112I W** *condition-name condition is not supported and is ignored.*

## Explanation

The CHECK and PENDING conditions are not part of the PL/I language.

```
on check ...
```

---

**IBM1113I W** *verb-name statement is not supported and is ignored.*

## Explanation

The named statement, for example the CHECK statement, is not part of the PL/I language.

---

**IBM1114I W** *Comparands are both constant.*

## Explanation

Both operands in a comparison are constant, and consequently, the result of the comparison is also a constant. If this comparison is the expression in an IF clause, for example, this means that either the THEN or ELSE clause will never be executed.

---

**IBM1115I W** *INITIAL list contains count items, but the array variable name contains only array size. Excess is ignored.*

## Explanation

For an array, an INITIAL list should not contain more values than the array has elements.

```
dcl a init( 1, 2 ), b(5) init( (10) 0 );
```

---

**IBM1116I W** *Comment spans more than one file.*

## Explanation

A comment ends in a different file than it begins. This may indicate that an end-of-comment statement is missing.

---

**IBM1117I W** *String spans more than one file.*

## Explanation

A string ends in a different file than it begins. This may indicate that a closing quote is missing.

---

**IBM1118I W** *Delimiter missing between nondelimiter and nondelimiter. A blank is assumed.*

## Explanation

A delimiter (for example, a blank or a comma) is required between all identifiers and constants.

```
dcl 1 a, 2 b, 3c;
```

---

**IBM1119I W** *Code generated for DO group would be more efficient if control variable name were not an aggregate member.*

## Explanation

The control variable in the DO loop is a member of an array, a structure or a union, and consequently, the code generated for the loop will not be optimal.

---

**IBM1120I W** *Multiple closure of groups. END statements will be inserted to close intervening groups.*

## Explanation

Using one END statement to close more than one group of statements is permitted, but it may indicate a coding error.

---

**IBM1121I W** *Missing character assumed.*

## Explanation

The indicated character is missing, and there are no more characters in the source. The missing character has been inserted by the parser in order to correct your source.

---

**IBM1122I W** *Missing character assumed before character.*

## Explanation

The indicated character is missing and has been inserted by the parser in order to correct your source.

```
display( 'Program starting' ;
```

**IBM1123I W**     **The ENVIRONMENT option *option-name* has been specified without a suboption. The option *option-name* is ignored.**

## Explanation

Certain ENVIRONMENT options, such as RECSIZE, require suboptions.

```
dcl f file env( recsize );
```

**IBM1124I W**     **A suboption has been specified for the ENVIRONMENT option *option-name*. The suboption will be ignored.**

## Explanation

Certain ENVIRONMENT options, such as CONSECUTIVE, should be specified without any suboptions.

```
dcl f file env( consecutive(1) );
```

**IBM1125I W**     **The ENVIRONMENT option *option-name* has been specified more than once.**

## Explanation

ENVIRONMENT options should not be repeated.

```
dcl f file env( consecutive consecutive );
```

**IBM1126I W**     **The ENVIRONMENT option *option-name* has an invalid suboption. The option will be ignored.**

## Explanation

The suboption type is incorrect.

```
dcl f file env( regional(5) );
```

**IBM1127I W**     ***option-name* is not a known ENVIRONMENT option. It will be ignored.**

## Explanation

There is no such supported ENVIRONMENT option.

```
dcl f file env( unknown );
```

**IBM1128I W**     **The ENVIRONMENT option *option-name* conflicts with the LANTLR compiler option. The option will be ignored.**

## Explanation

The indicated option is valid only with LANTLR(OS).

```
dcl f file env( fb );
```

**IBM1129I W**     ***verb-name processor-name* statement ignored up to closing semicolon.**

## Explanation

An EXEC SQL or EXEC CICS statement has been found in the source program. The compiler will ignore these statements.

```
exec sql ...;
```

**IBM1130I W**     **The external name *identifier* is too long. It will be shortened to *identifier*.**

## Explanation

The maximum length of external names is set by the EXTNAME suboption of the LIMITS compiler option.

```
dcl this_name_is_long static external  
pointer;
```

---

**IBM1131I W**      **An EXTERNAL name specification for *name* has been specified on its PROCEDURE statement and in the EXPORTS clause of the PACKAGE statement. The EXPORTS specification will be used.**

### Explanation

The name specified in the EXTERNAL attribute in the EXPORTS clause overrides the name specified in the EXTERNAL attribute on the PROCEDURE statement.

```
a: package exports( b ext('_B') );
b: proc  ext( 'BB' );
```

---

**IBM1132I W**      **An EXTERNAL name specification for *name* has been specified in its declaration and in the RESERVES clause of the PACKAGE statement. The RESERVES specification will be used.**

### Explanation

The name specified in the EXTERNAL attribute in the RESERVES clause overrides the name specified in the EXTERNAL attribute in the DECLARE statement.

```
a: package reserves( b ext('_B') );
dcl b ext( 'BB' ) static ...
```

---

**IBM1133I W**      **The FORMAT CONSTANT array *label-name* is not fully initialized.**

### Explanation

An element of a FORMAT CONSTANT array has not been defined, for example, f(2) in the example below.

```
f(1): format( x(2), a );
f(3): format( x(4), a );
```

---

**IBM1134I W**      **The LABEL CONSTANT array *label-reference* is not fully initialized.**

### Explanation

The named variable defines a statement label array, but not all the elements in that array are labels for statements in the containing procedure.

```
l(1): display( ... );
l(3): display( ... );
```

---

**IBM1135I W**      **Logical operand is constant.**

### Explanation

An argument to one of the logical operators (or, and or not) is a constant. The result of the operation may also be a constant. If this operation is the expression in an IF clause, for example, this means that either the THEN or ELSE clause will never be executed.

```
if a | '1'b then
```

---

**IBM1136I W**      **Function invoked as a subroutine.**

### Explanation

A function, for example, a PROCEDURE or ENTRY statement with the RETURNS attribute, has been invoked in a CALL statement. The value that is returned by the function will be discarded, but the OPTIONAL attribute should be used to indicate that this is valid.

---

**IBM1137I W**      **The attribute *attribute* is invalid in GENERIC descriptions and will be ignored.**

### Explanation

The named attribute is invalid in GENERIC description lists.

```
dcl g generic ( f1 when( connected ),
               f2 otherwise );
```

---

**IBM1138I W**      **Number of items in INITIAL list is *count* for the array *variable name* which contains *array size* elements.**

### Explanation

The array will be incompletely initialized. If the named variable is part of a structure, subsequent elements in

that structure with this problem will be flagged with message 2602. This may be a programming error (in the example below, 4 should probably have been 6) and may cause exceptions when the program is run.

```
dcl a(8) fixed dec init( 1, 2, (4) 0 );
```

---

**IBM1139I W**      **Syntax of the CONTROL statement is incorrect.**

### Explanation

The %CONTROL statement must be followed by FORMAT or NOFORMAT option enclosed in parentheses and then a semicolon.

---

**IBM1140I W**      **The *name* built-in function is no longer considered secure due to collision vulnerabilities. Use of the *name* built-in function is deprecated and support for it will be withdrawn in the future.**

### Explanation

The SHA-1 algorithm is weak and vulnerable to collision attacks, where two different inputs can produce the same hash value. If used for data integrity or authentication, this could lead to security breaches. It is recommended to use SHA-256 or stronger hash functions instead.

---

**IBM1141I W**      **Syntax of the NOPRINT statement is incorrect.**

### Explanation

The %NOPRINT statement must be followed, with optional intervening blanks, by a semicolon.

---

**IBM1142I W**      **Syntax of the PAGE statement is incorrect.**

### Explanation

The %PAGE statement must be followed, with optional intervening blanks, by a semicolon.

---

**IBM1143I W**      **Syntax of the PRINT statement is incorrect.**

### Explanation

The %PRINT statement must be followed, with optional intervening blanks, by a semicolon.

---

**IBM1144I W**      **Number of lines specified with SKIP must be between 0 and 999 inclusive.**

### Explanation

Skip amounts greater than 999 are not supported.

```
%skip(2000);
```

---

**IBM1145I W**      **Syntax of the SKIP statement is incorrect.**

### Explanation

The %SKIP statement must be followed by a semicolon with optional intervening blanks and a parenthesized integer.

---

**IBM1146I W**      **Syntax of the TEST option in the OPTION statement is incorrect.**

### Explanation

The TEST option in the %OPTION statement must be specified without any suboptions.

---

**IBM1147I W**      **Syntax of the NOTEST option in the OPTION statement is incorrect.**

### Explanation

The NOTEST option in the %OPTION statement must be specified without any suboptions.

---

**IBM1148I W**      **Syntax of the PUSH statement is incorrect.**

### Explanation

The %PUSH statement must be followed, with optional intervening blanks, by a semicolon.

---

**IBM1149I W**      **Syntax of the POP statement is incorrect.**

### Explanation

The %POP statement must be followed, with optional intervening blanks, by a semicolon.

---

**IBM1150I W**      **Syntax of the NOTE statement is incorrect.**



## Explanation

The %NOTE statement must be followed by, in parentheses, a note and an optional return code, and then a semicolon.

---

**IBM1151I W**      **FIXED BINARY precision is reduced to *maximum value*.**

---

## Explanation

The maximum FIXED BIN precision depends on the LIMITS option.

---

**IBM1152I W**      **FIXED DECIMAL precision is reduced to *maximum value*.**

---

## Explanation

The maximum FIXED DEC precision depends on the LIMITS option.

---

**IBM1153I W**      **FLOAT BINARY precision is reduced to *maximum value*.**

---

## Explanation

The maximum FLOAT BIN precision is 64 on Intel, 106 on AIX and 109 on z/OS.

---

**IBM1154I W**      **FLOAT DECIMAL precision is reduced to *maximum value*.**

---

## Explanation

The maximum FLOAT DEC precision is 18 on Intel, 32 on AIX and 33 on z/OS except for DFP which has a maximum of 34.

---

**IBM1155I W**      **The aggregate *aggregate-name* contains noncomputational values. Those values will be ignored.**

---

## Explanation

Some members of an aggregate referenced in an I/O statement are noncomputational. The computational members will be correctly processed, but the noncomputational ones will be ignored.

```
dcl 1 x,  
    2 y ptr,  
    3 fixed bin(31);  
put skip list(x);
```

---

**IBM1156I W**      **Arguments to MAIN PROCEDURE are not all POINTER.**

---

## Explanation

Under SYSTEM(CICS), SYSTEM(TSO) and SYSTEM(IMS), the arguments to the MAIN procedure should all have type POINTER.

---

**IBM1157I W**      ***note***

---

## Explanation

This message is used by %NOTE statements with a return code of 4.

---

**IBM1158I W**      **A *option* is missing in the specification of the *option* option. One is assumed.**

---

## Explanation

A closing quote or parenthesis is missing in the specification of a compiler option. A quoted string must not cross line boundaries.

---

**IBM1159I W**      **The string *option* is not recognized as a valid option keyword and is ignored.**

---

## Explanation

An invalid compiler option has been specified.

---

**IBM1160I W**      **The third argument to the MARGINS option is not supported.**

---

## Explanation

Printer control characters are not supported on input source records.

---

**IBM1161I W**      **The suboption *suboption* is not valid for the *option* compiler option.**

---

## Explanation

A suboption of a compiler option is incorrect. The suboption may be unknown or outside the allowable range.

```
*process flag(q) margins(1002);
```

---

**IBM1162I W**      **A required suboption is missing for the *suboption* option.**

---

## Explanation

A required suboption of a compiler option is missing.

```
*process or;
```

---

**IBM1163I W** Required sub-fields are missing for the *option* option. Default values are assumed.

### Explanation

Required suboptions of a compiler option are missing.

```
*process margins;
```

---

**IBM1164I W** *option-name* should be specified within **OPTIONS**, but is accepted as is.

### Explanation

The option, for example REORDER, is accepted outside of the **OPTIONS** attribute, but it should be specified within the **OPTIONS** attribute. This would also conform to the ANSI standard.

---

**IBM1165I W** The **OPTIONS** option *option-name* has been specified more than once.

### Explanation

The only supported LINKAGE options are OPTLINK and SYSTEM.

---

**IBM1166I W** *suboption-name* is not a known *option-name* suboption. The *option-name* option will be ignored.

### Explanation

The only supported LINKAGE suboptions are OPTLINK and SYSTEM, and the only supported CMPAT suboptions are V1, V2, V3, and LE.

---

**IBM1167I W** Maximum number of **PUSH** statements exceeded. The control statement is ignored.

### Explanation

The maximum number of pending %PUSH statements is 63.

---

**IBM1168I W** No **PUSH** statements are in effect. The **POP** control statement is ignored.

### Explanation

A %POP has been issued when no %PUSH statement are pending.

---

**IBM1169I W** No precision was specified for the result of the *builtin name* builtin function. The precision will be determined from the argument.

### Explanation

This message applies to the FIXED and FLOAT builtin functions when only one argument is given. The precision is not set to a default, but is instead derived from the argument. For example, if x is FLOAT BIN(21), FIXED(x) will return a FIXED BIN(21) value.

---

**IBM1170I W** The **OPTIONS** attribute *option-attribute* is not supported and is ignored.

### Explanation

The indicated element of the **OPTIONS** list is not supported.

```
dcl a ext entry options( nomap );
```

---

**IBM1171I W** **SELECT** statement contains no **WHEN** or **OTHERWISE** clauses.

### Explanation

WHEN or OTHERWISE clauses are not required on SELECT statements, but their absence may indicate a coding error.

---

**IBM1172I W** A zero length string has been entered for the *option-name* option. The option is ignored.

### Explanation

User-specified string has zero length. This can occur when OR("") has been specified on the command line or when the backslash character is specified as the only character in the OR string. In the latter case, the backslash character has been interpreted as an escape character, and so the string appears to have zero length.

---

**IBM1173I W** **SELECT** statement contains no **WHEN** clauses.

### Explanation

SELECT statements do not require WHEN clauses, but their absence may indicate a coding error.

---

**IBM1174I W** The reference in the *from-into clause* clause may not be byte-aligned.

## Explanation

The reference specified in the FROM or INTO clause may not be byte-aligned. If the reference is indeed not byte-aligned, unpredictable results may occur.

---

**IBM1175I W**      **FIXED BINARY constant contains too many digits. Excess nonsignificant digits will be ignored.**

---

## Explanation

The maximum precision for FIXED BINARY constants is specified by the FIXEDBIN suboption of the LIMITS compiler option.

---

**IBM1176I W**      **FIXED DECIMAL constant contains too many digits. Excess nonsignificant digits will be ignored.**

---

## Explanation

The maximum precision for FIXED DECIMAL constants is specified by the FIXEDDEC suboption of the LIMITS compiler option.

---

**IBM1177I W**      **Mantissa in FLOAT BINARY constant contains more digits than the implementation maximum. Excess nonsignificant digits will be ignored.**

---

## Explanation

Float binary constants are limited to 64 digits on Intel, 32 on AIX and 33 on z/OS.

---

**IBM1178I W**      **Mantissa in FLOAT DECIMAL constant contains more digits than the implementation maximum. Excess nonsignificant digits will be ignored.**

---

## Explanation

Float decimal constants are limited to 18 digits on Intel, 106 on AIX and 109 on z/OS.

---

**IBM1179I W**      **FLOAT literal is too big for its implicit precision. An appropriate HUGE value is assumed.**

---

## Explanation

The precision for a float literal is implied by the number of digits in its mantissa. For instance 1e99 is implicitly FLOAT DECIMAL(1), but the value 1e99 is

larger than the largest value a FLOAT DECIMAL(1) can hold.

---

**IBM1180I W**      **Argument to *BUILTIN name* is not byte aligned.**

---

## Explanation

This message applies to the ADDR, CURRENTSTORAGE/SIZE and STORAGE/SIZE built-in functions. Applying any one of these built-in functions to a variable that is not byte-aligned may not produce the results you expect.

---

**IBM1181I W**      **A WHILE or UNTIL option at the end of a series of DO specifications applies only to the last specification.**

---

## Explanation

In the following code snippet, the WHILE clause applies only to the last DO specification, that is only when I = 5;

```
do i = 1, 3, 5 while( j < 5 );
```

---

**IBM1182I W**      **Invocation of a NONRECURSIVE PROCEDURE from within that PROCEDURE is invalid. RECURSIVE attribute is assumed.**

---

## Explanation

A procedure contains code that will cause it to be recursively invoked, but the procedure was not declared with RECURSIVE attribute.

```
a: proc( n );  
  ...  
  if n > 0 then call a;
```

---

**IBM1183I W**      ***condition-name* condition is disabled. Statement is ignored.**

---

## Explanation

The SIGNAL statement is ignored if the condition it would raise is disabled. Some conditions, like SIZE, are disabled by default.

```
(nofofl): signal fixedoverflow;
```

**IBM1184I W** Source with length *string-length* in INITIAL clause for variable name has length greater than the length *string-length* of that INITIAL variable.

### Explanation

The string in the INITIAL clause ('TooBig' in the example below) will be trimmed to fit (to 'TooB').

```
dcl x char(4) static init('tooBig');
```

**IBM1185I W** Source with length *string-length* in RETURN statement has length greater than that in the corresponding RETURNS attribute.

### Explanation

The string in the RETURNS clause ('TooBig' in the example below) will be trimmed to fit (to 'TooB').

```
x: proc returns( char(4) );  
...  
return( 'TooBig' );
```

**IBM1186I W** Source with length *string-length* in string assignment has length greater than the length *string-length* of the target.

### Explanation

The source in the assignment ('TooBig' in the example below) will be trimmed to fit (to 'TooB').

```
dcl x char(4);  
x = 'TooBig';
```

**IBM1187I W** Argument number *argument-number* in ENTRY reference entry name has length *string-length* which is greater than that of the corresponding parameter.

### Explanation

The source in the entry invocation ('TooBig' in the example below) will be trimmed to fit (to 'TooB').

```
dcl x entry( char(4) );
```

```
call x( 'TooBig' );
```

**IBM1188I W** Result of concatenating two strings is too long.

### Explanation

The length of the string produced by concatenating two strings must not be greater than the maximum allowed for the derived string type.

**IBM1189I W** NODESCRIPTOR attribute conflicts with the NONCONNECTED attribute for the parameter *parameter name*. CONNECTED is assumed.

### Explanation

If NODESCRIPTOR is specified (or implied) for a procedure, aggregate parameters should have the CONNECTED attribute. The CONNECTED attribute can be explicitly coded, or it can be implied by the DEFAULT(CONNECTED) compiler option.

**IBM1190I W** The OPTIONS option *option-name* conflicts with the LANGLVL compiler option. The option will be applied.

### Explanation

The named option is not part of the PL/I language definition as specified in the LANGLVL compiler option.

**IBM1191I W** Result of FIXED BIN divide will not be scaled.

### Explanation

When dividing a FIXED BIN(p1,0) value by a FIXED BIN(p2,0) value where 31 > p1, the result will have the attributes FIXED BIN(p1,0). With ANSI 76, it would have the attributes FIXED BIN(31,31-p1).

**IBM1192I W** WHEN clauses contain duplicate values.

### Explanation

In a dominated SELECT statement, if a WHEN clause has the same value as an earlier WHEN clause, the code for the second WHEN clause will never be executed. This message will be produced only if the SELECT statement is otherwise suitable for transformation into a branch table.

**IBM1193I W** *statement count* statements in block *block name*.

## Explanation

This message is produced if a block contains more statements than allowed by the MAXSTMT compiler option. It may point to blocks that are excessively large.

---

**IBM1194I W      More than one argument to MAIN PROCEDURE.**

---

## Explanation

A MAIN procedure should have at most one argument, except under SYSTEM(CICS) and SYSTEM(IMS).

---

**IBM1195I W      Argument to MAIN PROCEDURE is not CHARACTER VARYING.**

---

## Explanation

The argument to the MAIN procedure should be CHARACTER VARYING, except under SYSTEM(CICS), SYSTEM(TSO) and SYSTEM(IMS).

---

**IBM1196I W      AREA initialized with EMPTY - INITIAL attribute is ignored.**

---

## Explanation

Any INITIAL attribute specified for an AREA variable is ignored. The variable will, instead, be initialized with the EMPTY built-in function.

---

**IBM1197I W      *file-name* assumed as file condition reference.**

---

## Explanation

All file conditions should be qualified with a file reference, but ENDFILE and ENDPAGE are accepted without a file reference. SYSIN and SYSPRINT are then assumed, respectively.

---

**IBM1198I W      A null argument list is assumed for *variable name*.**

---

## Explanation

An ENTRY reference is used where the result of invoking that entry is probably meant to be used.

```
dcl e1 entry returns( ptr );
dcl q ptr based;
e1->q = null();

dcl e2 entry returns( bit(1) );
if e2 then ...
```

---

**IBM1199I W      Syntax of the LINE directive is incorrect.**

---

## Explanation

The %LINE directive must be followed, with optional intervening blanks, by a parenthesis, a line number, a comma, a file name and a closing parenthesis.

```
%line( 19, test.pli );
```

---

**IBM1200I W      Use of DATE built-in function may cause problems.**

---

## Explanation

The DATE built-in returns a two-digit year. It might be better to use the DATETIME built-in which returns a four-digit year.

---

**IBM1201I W      Use of the LISTVIEW(AFTERALL) option renders the use of the SOURCE suboption in the RULES options moot.**

---

## Explanation

For example, specifying LISTVIEW(AFTERALL) and RULES(NOUNREF(SOURCE)) is contradictory: unreferenced automatic variables in any INCLUDE files (rather than just those in the primary source file) will still be flagged.

---

**IBM1202I W      Syntax of the OPTION statement is incorrect.**

---

## Explanation

The only option supported in the %OPTION statement is the LANGLVL option.

---

**IBM1203I W      Argument to PLITEST is ignored.**

---

## Explanation

Change the invocation of PLITEST so that no argument is passed.

---

**IBM1204I W      INTERNAL CONSTANT assumed for initialized STATIC LABEL.**

---

## Explanation

LABEL variables require block activation information, and hence they cannot be initialized at compile-time. For a STATIC LABEL variable with the INITIAL attribute, if the variable is a member of a structure or a union, a severe message will be issued. Otherwise, its attributes will be changed to INTERNAL CONSTANT in order to eliminate the requirement for block activation

information. Such a variable must be initialized with LABEL CONSTANTS from containing blocks.

---

**IBM1205I W**      **Arguments of the *option* compiler option must be the same length.**

---

### Explanation

If two arguments of the NAMES option are specified, they must be the same length. The second argument is the uppercase value of the first. If a character in the first string does not have an uppercase value, use the character itself as the uppercase value. For example:

```
names( '$!@' '$!@')
```

---

**IBM1206I W**      **BIT operators should be applied only to BIT operands.**

---

### Explanation

In an expression of the form  $x \& y$ ,  $x | y$ , or  $x \wedge y$ ,  $x$  and  $y$  should both have BIT type.

---

**IBM1207I W**      **Operand to LENGTH built-in function should have string type.**

---

### Explanation

If the operand has a numeric type, the result is the length that value would have after it was converted to string. The length of a numeric type is NOT the same as its storage requirement.

---

**IBM1208I W**      **INITIAL list for the array *variable* name contains only one item.**

---

### Explanation

The array will be incompletely initialized. If the named variable is part of a structure, subsequent elements in that structure with this problem will be flagged with message 2603. An asterisk can be used as an initialization factor to initialize all the elements with one value. In the example below,  $a(1)$  is initialized with the value 13, while the elements  $a(2)$  through  $a(8)$  are uninitialized. In contrast, all the elements in  $b$  are initialized to 13.

```
dcl a(8) fixed bin init( 13 );
dcl b(8) fixed bin init( (*) 13 );
```

---

**IBM1209I W**      **INDEXED environment option for file *file name* will be treated as ORGANIZATION(INDEXED).**

---

### Explanation

Since ISAM is not being simulated on the OS/2 platform, the file will be treated in a manner similar to VSAM KSDS. The file specified in the first declaration below would be handled in the same manner as the file in the second declaration. Both are treated as ORGANIZATION(INDEXED).

```
dcl f1 file env(indexed);
dcl f2 file env(organization(indexed));
```

---

**IBM1210I W**      **The field width specified in the *keyword*-format item may be too small for complete output of the data item.**

---

### Explanation

The format width will be too small for output if the number is negative. It might be valid if the format is being used for input.

---

**IBM1211I W**      **Source with length *string-length* in string assignment has length greater than the length *string-length* of the target *variable*.**

---

### Explanation

The source in the assignment ('TooBig' in the example below) will be trimmed to fit (to 'TooB'). If the target is a pseudovalue, message 1186 is issued instead.

```
dcl x char(4);
x = 'TooBig';
```

---

**IBM1212I W**      **The A format item requires an argument when used in GET statement. An L format item is assumed in its place.**

---

### Explanation

A width must be specified on A format items when specified on a GET statement.

```
get edit(name) (a);
```

---

**IBM1213I W**      **The PROCEDURE *proc name* is not referenced.**

---

## Explanation

The named procedure is not external and is never referenced in any live code in the compilation unit. This may represent an error (if it was supposed to be called) or an opportunity to eliminate some dead code.

---

**IBM1214I W**      **A dummy argument will be created for argument number *argument-number* in ENTRY reference *entry name*.**

---

## Explanation

An argument passed BYADDR to an entry does not match the corresponding parameter in the entry description. The address of the argument will not be passed to the entry. Instead, the argument will be assigned to a temporary with attributes that do match the parameter in the entry description, and the address of that temporary will be passed to the entry. This means that if the entry alters the value of this parameter, the alteration will not be visible in the calling routine.

```
dcl e entry( fixed bin(31) );
dcl i fixed bin(15);
call e( i );
```

---

**IBM1215I W**      **The variable *variable name* is declared without any data attributes.**

---

## Explanation

It will be given the default attributes, but this may be because of an error in the declare. For instance, in the following example, parentheses may be missing

```
dcl a, b fixed bin;
```

---

**IBM1216I W**      **The structure member *variable name* is declared without any data attributes. A level number may be incorrect.**

---

## Explanation

It will be given the default attributes, but this may be because of an error in the declare. For instance, in the following example, the level number on c and d should probably be 3.

```
dcl a, b fixed bin;
  1 a,
```

```
  2 b,
  2 c,
  2 d;
```

---

**IBM1217I W**      **An unnamed structure member is declared without any data attributes. A level number may be incorrect.**

---

## Explanation

It will be given the default attributes, but this may be because of an error in the declare. For instance, in the following example, the level number on c and d should probably be 3.

```
dcl a, b fixed bin;
  1 a,
  2 *,
  2 c,
  2 d;
```

---

**IBM1218I W**      **First argument to *BUILTIN name* built-in function should have string type.**

---

## Explanation

To eliminate this message, apply the CHAR or BIT built-in function to the first argument.

```
dcl i fixed bin;
display( substr(i,4) );
```

---

**IBM1219I W**      **LEAVE will exit noniterative DO-group.**

---

## Explanation

This message is not produced if the LEAVE statement specifies a label. In the following loop, the LEAVE statement will cause only the immediately enclosing DO-group to be exited; the loop will not be exited.

```
do i = 1 to n;
  if a(i) > 0 then
    do;
      call f;
      leave;
    end;
  else;
  end;
```

---

**IBM1220I W**      **Result of comparison is always constant.**

---

## Explanation

This message is produced when a variable is compared to a constant equal to the largest or smallest value that the variable could assume. In the following loop, the variable x can never be greater than 99, and hence the implied comparison executed each time through the loop will always result in a '1'b.

```
dcl x pic'99';  
  
do x = 1 to 99;  
end;
```

---

**IBM1221I W**      **Statement uses *count* bytes for temporaries.**

## Explanation

This message is produced if a statement uses more bytes for temporaries than allowed by the MAXTEMP compiler option.

---

**IBM1222I W**      **Comparison involving 2-digit year is problematic.**

## Explanation

Comparisons involving data containing 2-digit year fields may cause problems if exactly one of the years is later than 1999.

---

**IBM1223I W**      **Literal in comparison interpreted with DATE attribute.**

## Explanation

In a comparison, if one comparand has the DATE attribute, the other should also. If the non-date is a literal with a value that is valid for the date pattern, it will be viewed as if it had the same DATE attribute as the date comparand. So, in the following code, '670101' will be interpreted as if it had the DATE('YYMMDD') attribute.

```
dcl x char(6) date('YYMMDD');  
  
if x > '670101' then ...
```

---

**IBM1224I W**      **DATE attribute ignored in comparison with non-date literal.**

## Explanation

In a comparison, if one comparand has the DATE attribute, the other should also. If the non-date is a literal with a value that is not valid for the date pattern,

the DATE attribute will be ignored. So, in the following code, the comparison will be evaluated as if x did not have the DATE attribute.

```
dcl x char(6) date('YYMMDD');  
  
if x > '' then ...
```

---

**IBM1225I W**      **DATE attribute ignored in conversion from literal.**

## Explanation

If the target in an explicit or implicit assignment has the DATE attribute, the source should also. If it does not, the DATE attribute will be ignored. So, in the following code, the assignment will be performed as if x did not have the DATE attribute.

```
dcl x char(6) date('YYMMDD');  
  
x = '';
```

---

**IBM2600I W**      **Compiler backend issued warning messages to STDOUT.**

## Explanation

Look in STDOUT to see the message issued by the compiler backend.

---

**IBM2601I W**      **Missing *character* assumed before *character*. DECLARE and other nonexecutable statements should not have labels.**

## Explanation

The indicated character is missing and has been inserted by the parser in order to correct your source.

```
xx: dcl test fixed bin;
```

---

**IBM2602I W**      **Number of items in INITIAL list is *count* for the array variable name which contains array size elements.**

## Explanation

The array will be incompletely initialized. If the named variable is part of a structure, the first element in that structure with this problem will be flagged with message 1138. This may be a programming error (in



the example below, 6 should probably have been 7) and may cause exceptions when the program is run.

```

dcl
  1 a,
    2 b(8) fixed bin init( 1, (7) 29 ),
    2 c(8) fixed bin init( 1, (6) 29 );

```

**IBM2603I W**      **INITIAL list for the array variable name contains only one item.**

## Explanation

The array will be incompletely initialized. If the named variable is part of a structure, the first element in that structure with this problem will be flagged with message 1208. An asterisk can be used as an initialization factor to initialize all the elements with one value. In the example below, b(1) and c(1) are initialized with the value 13, while the elements b(2) through b(8) and c(2) through c(8) are uninitialized. In contrast, all the elements in d are initialized to 13.

```

dcl
  1 a,
    2 b(8) fixed bin init( 13 ),
    2 d(8) fixed bin init( 13 ),
    2 e(8) fixed bin init( (*) 13 );

```

**IBM2604I W**      **FIXED DEC(source-precision,source-scale) will be converted to FIXED DEC(target-precision,target-scale). Significant digits may be lost.**

## Explanation

If the source in a conversion to FIXED DECIMAL is a FIXED DECIMAL or PICTURE variable with a different precision and scale factor, and if the difference between the precisions is not as large as the the difference between the scale factors, then significant digits may be lost. If the SIZE condition were enabled, code would be generated to detect any such occurrence, and this message would not be issued.

```

dcl a fixed dec(04) init(1009);
dcl b fixed dec(03);

b = a;

```

**IBM2605I W**      **Invalid carriage control character. Blank assumed.**

## Explanation

The specified line contains an invalid ANS print control character. The valid characters are: blank, 0, -, + and 1.

**IBM2606I W**      **Code generated for the REFER object *reference name* would be more efficient if the REFER object had the attributes REAL FIXED BIN(p,0).**

## Explanation

If the REFER object has any other attributes, it will be converted to and from REAL FIXED BIN(31,0) via library calls.

**IBM2607I W**      **PICTURE representing FIXED DEC(source-precision,source-scale) will be converted to FIXED DEC(target-precision,target-scale). Significant digits may be lost.**

## Explanation

If the source in a conversion to FIXED DECIMAL is a PICTURE variable with a different precision and scale factor, and if the difference between the precisions is not as large as the the difference between the scale factors, then significant digits may be lost. If the SIZE condition were enabled, code would be generated to detect any such occurrence, and this message would not be issued.

```

dcl a pic'(4)9' init(1009);
dcl b fixed dec(03);

b = a;

```

**IBM2608I W**      **PICTURE representing FIXED DEC(source-precision,source-scale) will be converted to PICTURE representing FIXED DEC(target-precision,target-scale). Significant digits may be lost.**

## Explanation

If the source in a conversion to a PICTURE is a PICTURE variable with a different precision and scale factor, and if the difference between the precisions is not as large as the the difference between the scale factors, then significant digits may be lost. If the SIZE condition were enabled, code would be generated to detect any such occurrence, and this message would not be issued.

```

dcl a pic'(4)9' init(1009);
dcl b pic'(3)9';

b = a;

```

---

**IBM2609I W**      **Comment contains a semicolon on line *line-number*.file-number.**

---

### Explanation

If a comment contains a semicolon, it may indicate that there is an earlier unintentionally unclosed comment that is accidentally commenting out some source as in this example

```

/* start of unclosed comment
dcl b pic'(3)9';
/* next comment */

```

---

**IBM2610I W**      **One argument to *BUILTIN* name built-in function is FIXED DEC while the other is FIXED BIN. Compiler will not interpret precision as FIXED DEC.**

---

### Explanation

This message applies to the MULTIPLY, DIVIDE, ADD, and SUBTRACT built-in functions: if one argument to one of these functions is FIXED DEC while the other is FIXED BIN, then the specified precision will not be interpreted as a FIXED DEC precision. This may cause improper truncation of data. For example, the result of the following multiply will have the attributes FIXED BIN(15), not FIXED DEC(15), and that might cause the result to be improperly truncated.

```

dcl a fixed bin(31);
dcl b fixed dec(15);

b = multiply( a, 1000, 15 );

```

---

**IBM2611I W**      **The binary value *binary value* appears in more than one WHEN clause.**

---

### Explanation

In a dominated SELECT statement, if a WHEN clause has the same value as an earlier WHEN clause, the code for the second WHEN clause will never be executed. This message will be produced only if the SELECT statement is otherwise suitable for transformation into a branch table.

---

**IBM2612I W**      **The character string *character string* appears in more than one WHEN clause.**

---

### Explanation

In a dominated SELECT statement, if a WHEN clause has the same value as an earlier WHEN clause, the code for the second WHEN clause will never be executed. This message will be produced only if the SELECT statement is otherwise suitable for transformation into a branch table.

---

**IBM2613I W**      **RULES(NOLAXINOUT) violation: *variable* is being passed as an INOUT parameter, but may be unset.**

---

### Explanation

The indicated variable may not have been assigned or initialized a value before it is used as an INOUT parameter. This is problematic unless it is used only as an OUTONLY parameter.

---

**IBM2614I W**      **Both comparands are Booleans.**

---

### Explanation

This message will flag statements such as the following, where the "equals" is meant to be an "and" or "or".

```

if ( a < b ) = ( c < d ) then

```

---

**IBM2615I W**      **DO-loop will always execute exactly once. A semicolon after the DO may be missing.**

---

### Explanation

DO-loops should normally be iterative, but if the DO-loop specification consists of just one assignment, then it will always execute once and only once. A semicolon after the DO may be missing, as in this example

```

do
  edsaup.tprs = ads162.tprs;
  edsaup.tops = ads162.tops;
end;

```

---

**IBM2616I W**      **Size of parameter *variable* will return the currentsize value since no descriptor is available.**

---

## Explanation

If the SIZE or STG built-in function is applied to a CHAR(\*) VARYING (or VARYINGZ) parameter when there is no descriptor available, then the size of the actual storage allocated to the variable cannot be determined and only the current size can be returned.

---

**IBM2617I W**      **Passing a LABEL to a non-PL/I routine is very poor coding practice and will cause the compiler to generate less than optimal code.**

---

## Explanation

It is generally very unwise to pass a label to another routine. It would be good to think about redesigning any code doing this. The compiler will issue this message when a LABEL is passed to an ENTRY declared with OPTIONS( COBOL ) or OPTIONS( ASM ) or OPTIONS( FORTRAN ). The only valid use of this label in the called routine would be to pass it on to another PL/I routine.

---

**IBM2618I W**      **The suboption *suboption* is not valid for the suboption *option* of the *option* compiler option.**

---

## Explanation

A suboption of a suboption of a compiler option is incorrect. The suboption may be unknown or outside the allowable range.

```
*process limits(extname(2000));
```

---

**IBM2620I W**      **Target structure contains REFER objects. Results are undefined if the assignment changes any REFER object.**

---

## Explanation

Changing REFER objects may not produce the expected results. For example, in the following example, the assignment will not change any of the elements in the array d.

```
dc1
  1 a based(p),
  2 b   fixed bin(31),
  2 c   fixed bin(31),
  2 d( 10 refer(c) ),
  3 e   fixed bin(31),
  3 f   fixed bin(31);

a = '';
```

---

**IBM2621I W**      **ON ERROR block does not start with ON ERROR SYSTEM. An error inside the block may lead to an infinite loop.**

---

## Explanation

The first statement in an ON ERROR block should usually be an ON ERROR SYSTEM statement. This will tend to prevent an infinite loop if there is an error in the rest of the code in the ON ERROR block.

---

**IBM2622I W**      **ENTRY used to set the initial value in a DO loop will be invoked after any TO or BY values are set.**

---

## Explanation

If the initial value in a DO loop is set via an ENTRY, then you may get unexpected results if that ENTRY also changes the TO or BY value. For example, in the first loop below, the function "first" should not change the value of the variable "last". It would be better to change this code into the form of the second loop below.

```
do x = first() to last;
end;

temp = first();
do x = temp to last;
end;
```

---

**IBM2623I W**      **Mixing FIXED BIN and FLOAT DEC produces a FLOAT BIN result. Under DFP, this will lead to poor performance.**

---

## Explanation

Under DFP, the conversion of FLOAT DEC to FLOAT BIN requires an expensive library call that will lead to poor performance. To avoid this, the DECIMAL built-in function can be applied to the FIXED BIN operand. For example, it would be better to change the first assignment statement into the form of the second below.

```
dc1 n fixed bin(31);
dc1 f float dec(16);

f = n + f;
f = dec(n) + f;
```

---

**IBM2624I W**      **Mixing BIT and FLOAT DEC produces a FLOAT BIN result.**

---

**Under DFP, this will lead to poor performance.**

### Explanation

Under DFP, the conversion of FLOAT DEC to FLOAT BIN requires an expensive library call that will lead to poor performance. To avoid this, the DECIMAL built-in function can be applied to the BIT operand. For example, it would be better to change the first assignment statement into the form of the second below.

```
decl b bit(8);
decl f float dec(16);

f = b + f;
f = dec(b) + f;
```

**IBM2625I W**      **Mixing FLOAT BIN and FLOAT DEC produces a FLOAT BIN result. Under DFP, this will lead to poor performance.**

### Explanation

Under DFP, the conversion of FLOAT DEC to FLOAT BIN requires an expensive library call that will lead to poor performance.

**IBM2626I W**      **Use of SUBSTR with a third argument equal to 0 is somewhat pointless since the result will always be a null string.**

### Explanation

While technically valid, a SUBSTR reference with a third argument that is a constant of zero probably represents a coding error.

**IBM2627I W**      **No metadata will be generated for the structure *identifier* since its use of REFER is too complex.**

### Explanation

XMI metadata is generated for BASED structures using REFER only if their use of REFER is "simple".

**IBM2628I W**      **BYVALUE parameters should ideally be no larger than 32 bytes.**

### Explanation

BYVALUE parameters larger than 32 bytes require too much overhead and are bad for performance.

**IBM2629I W**      **No debug symbol information will be generated for *identifier*.**

### Explanation

No debug symbol information will be generated for the named variable, and hence it cannot be referenced when using the debugger.

**IBM2630I W**      **The operands in a multiplication operation have the attributes *operand attributes* and *operand attributes* which will produce a result with the attributes *result attributes*. This means that its scale factor is greater than its precision. That may lead to the loss of significant digits and unexpected results. You may be able to avoid this problem by reducing the the scale factor of one of the operands or by using the MULTIPLY built-in function.**

### Explanation

This message can occur in a multiply of x by y if the sum of the scale factors of x and y is too large. To eliminate this message, the PRECISION built-in function could be used to reduce the scale factor of one of the operands or the MULTIPLY built-in function could be used to override the default attributes for the result.

**IBM2631I W**      **One argument to *BUILTIN name* built-in function is FIXED DEC while the other is FLOAT BIN. Compiler will not interpret precision as FIXED DEC.**

### Explanation

This message applies to the MULTIPLY, DIVIDE, ADD, and SUBTRACT built-in functions: if one argument to one of these functions is FIXED DEC while the other is FLOAT BIN, then the specified precision will not be interpreted as a FIXED DEC precision. This may cause improper truncation of data. For example, the result of the following multiply will have the attributes FLOAT BIN(15), not FIXED DEC(15), and that might cause the result to be improperly truncated.

```
decl a float bin(31);
decl b fixed dec(15);

b = multiply( a, 1000, 15 );
```

**IBM2632I W** One argument to *BUILTIN* name built-in function is **FIXED DEC** while the other is **FLOAT DEC**. Compiler will not interpret precision as **FIXED DEC**.

### Explanation

This message applies to the MULTIPLY, DIVIDE, ADD, and SUBTRACT built-in functions: if one argument to one of these functions is **FIXED DEC** while the other is **FLOAT DEC**, then the specified precision will not be interpreted as a **FIXED DEC** precision. This may cause improper truncation of data. For example, the result of the following multiply will have the attributes **FLOAT DEC(15)**, not **FIXED DEC(15)**, and that might cause the result to be improperly truncated.

```
dcl a float dec(15);
dcl b fixed dec(15);

b = multiply( a, 1000, 15 );
```

**IBM2633I W** Given the support for addressing arithmetic, basing a **POINTER** or **OFFSET** on a **FIXED BIN** is unnecessary, and it will also fail to work properly if the size of a **POINTER** changes.

### Explanation

Code using such variables will work only as long as the size of the **POINTER** or **OFFSET** variable remains the same as the size of the **FIXED BIN** variable.

**IBM2634I W** Given the support for addressing arithmetic, basing a **FIXED BIN** on a **POINTER** or **OFFSET** is unnecessary, and it will also fail to work properly if the size of a **POINTER** changes.

### Explanation

Code using such variables will work only as long as the size of the **POINTER** or **OFFSET** variable remains the same as the size of the **FIXED BIN** variable.

**IBM2635I W** The scale factor *scale-factor* specified in the *BUILTIN* name built-in function is problematically large. Specifying a value greater than the maximum of the two operand's scale factors (*scale factor* and *scale factor*) leads to spurious trailing zeros

and increases the risk of an unnecessary overflow.

### Explanation

In **ADD(x,y,p,q)**, if x is **FIXED DEC(p1,q1)** and y is **FIXED DEC(p2,q2)**, then it is very odd if  $q > \max(q1,q2)$ . The requested excess fractional digits would always be equal to zero and producing them risks causing an overflow in the **ADD**.

**IBM2636I W** The ordinal *ordinal name* appears in more than one **WHEN** clause.

### Explanation

In a dominated **SELECT** statement, if a **WHEN** clause has the same value as an earlier **WHEN** clause, the code for the second **WHEN** clause will never be executed. This message will be produced only if the **SELECT** statement is otherwise suitable for transformation into a branch table.

**IBM2637I W** An **ENTRY** invoked as a function should have the **RETURNS** attribute.

### Explanation

If an **ENTRY** is used as a function, it should be declared with the **RETURNS** attribute. The compiler will apply the **RETURNS** attribute to both of the **ENTRY**s in this example, but for **E**, the compiler will assume it will return **FLOAT DEC** while for **M**, it will assume it will return **FIXED BIN**.

```
dcl e entry;
dcl m entry;

a = e();
a = m();
```

**IBM2638I W** Statement used *count* intermediate language instructions.

### Explanation

This message is produced if a statement uses more intermediate language instructions. than allowed by the **MAXGEN** compiler option. It may point to statements that are excessively complex.

**IBM2639I W** Previous statement used *count* intermediate language instructions.

## Explanation

This message is produced if a statement uses more intermediate language instructions. than allowed by the MAXGEN compiler option. It may point to statements that are excessively complex. This message, rather than message IBM2638, is produced under the same situations as message IBM2638 except the STMT number option must also be in effect.

---

**IBM2640I W**      **Target is a REFER object. Results are undefined if an assignment changes a REFER object.**

---

## Explanation

Changing REFER objects might cause subsequent code to fail. For example, in the following code, the first assignment causes the second assignment to overwrite storage.

```
dc1
 1 a based(p),
 2 b      fixed bin(31),
 2 c      fixed bin(31),
 2 d( 10 refer(c) ),
 3 e      fixed bin(31),
 3 f      fixed bin(31);

allocate a;
a.c = 15;
a.f = 0;;
```

---

**IBM2641I W**      **The suboption *option* of the *option* compiler option must be followed by a (possibly empty) parenthesized list.**

---

## Explanation

A suboption of a compiler option has been incorrectly specified. It must be followed by a left parenthesis and then a (possibly empty) list of items and a closing right parenthesis.

```
*process deprecate(builtin);
```

---

**IBM2642I W**      **OPTIONS(REENTRANT) is ignored.**

---

## Explanation

Specifying OPTIONS(REENTRANT) on a PROCEDURE or BEGIN block has no effect on the generated code. Your code will be reentrant only if it does not alter any STATIC variables. You can use the DEFAULT(NONASGN) compiler option to force the compiler to flag assignments to STATIC variables.

---

**IBM2643I W**      **The built-in function *builtin* will be deprecated.**

---

## Explanation

The named built-in function was specified in the BUILTIN suboption of the DEPRECATENEXT option, and so any explicit or contextual declaration of it is flagged.

---

**IBM2644I W**      **The INCLUDE file *filename* will be deprecated.**

---

## Explanation

The named INCLUDE file was specified in the INCLUDE suboption of the DEPRECATENEXT option, and so any attempt to include it is flagged.

---

**IBM2645I W**      **The ENTRY named *entryname* will be deprecated.**

---

## Explanation

The named ENTRY was specified in the ENTRY suboption of the DEPRECATENEXT option, and so any explicit or contextual declaration of it is flagged.

---

**IBM2646I W**      **The VARIABLE named *variable* will be deprecated.**

---

## Explanation

The named VARIABLE was specified in the VARIABLE suboption of the DEPRECATENEXT option, and so any explicit or contextual declaration of it is flagged.

---

**IBM2647I W**      **The *statementname* statement will be deprecated.**

---

## Explanation

The named statement was specified in the STMT suboption of the DEPRECATENEXT option, and so any use of that statement is flagged.

---

**IBM2648I W**      **Declaration contains *count* INITIAL items.**

---

## Explanation

Change the declaration to STATIC, or remove the INITIAL items and copy the INITIAL items from a STATIC variable.

---

**IBM2649I W**      **The binary value *binary value* appears more than once in the INLIST argument set.**

---

## Explanation

In INLIST( x, y1, y2, ... ), no y value should appear twice. This message will be produced only

if the INLIST function is otherwise suitable for transformation into a branch table.

---

**IBM2650I W**      **The ordinal *ordinal name* appears more than once in the INLIST argument set.**

---

### Explanation

In INLIST( x, y1, y2, ... ), no y value should appear twice. This message will be produced only if the INLIST function is otherwise suitable for transformation into a branch table.

---

**IBM2651I W**      **Block *block name* contains count branches.**

---

### Explanation

This message is produced if a block contains more branches than allowed by the MAXBRANCH compiler option. It may point to blocks that are excessively complex.

---

**IBM2652I W**      **REINIT reference contains no element with an INITIAL attribute.**

---

### Explanation

In the statement REINIT x, x should contain some element with an INITIAL attribute. If not, no code will be generated for the statement.

---

**IBM2653I W**      **The list of preprocessor options must be enclosed in quotation marks.**

---

### Explanation

For example, rather than specifying PP(SQL(VERSION(AUTO))), specify PP(SQL('VERSION(AUTO))).

---

**IBM2654I W**      **INITIAL attribute for BASED on ADDR has no effect on the base variable.**

---

### Explanation

The INITIAL attribute for BASED has an effect only if the BASED variable is used in an ALLOCATE statement. But for code such as the following, it has no effect on either the variable A or B.

```
decl a fixed bin(31);
decl b bit(32) based(addr(a)) init('b');
```

---

**IBM2655I W**      **Some options conflict with the non-overridable options.**

---

### Explanation

If the 2 strings in the IBMZIOP module are equal, then different values for the options specified there are not allowed in the +DD options files, the invocation parameter, the options environment variable or the PROCESS statements. The conflicting options will be ignored.

---

**IBM2656I W**      **Simple defining applies to *variable name*. If string-overlay defining is intended, then add POS(1) to its declaration.**

---

### Explanation

In the following example, DEFBUF does not overlay the first 10 bytes of BUFFER. Instead, each array element of DEFBUF overlays the first byte of the first byte of the corresponding array element of BUFFER.

```
DCL BUFFER(10)      CHAR (300);
DCL DEFBUF(10)     CHAR(1) DEF BUFFER;
```

---

**IBM2657I W**      **Both logical AND operands are identical.**

---

### Explanation

This is probably a coding error.

---

**IBM2658I W**      **Both logical OR operands are identical.**

---

### Explanation

This is probably a coding error.

---

**IBM2659I W**      **Generated code would be better if all the INITIAL attributes in the declare for *variable name* were changed to VALUE.**

---

### Explanation

If an AUTOMATIC or STATIC structure consists entirely of scalar fields all of which have the INITIAL attribute and none of which have their address taken, then the compiler could probably generate much better code if all the INITIAL keywords were changed to VALUE keywords. If the STATIC or AUTOMATIC attribute is explicitly specified, it would also have to be removed from the declare.

---

**IBM2660I W**      **Program logic may lead to the END statement for *procedure name* even though *procedure name* is a function that should return a value.**

---

### Explanation

This message warns that the compiler has detected code that could lead to an error under some conditions.

```
oops: proc( x ) returns( fixed bin(31) );
      dcl x fixed bin(31);
      select;
        when( x > 0 ) return( 1 );
        when( x = 0 ) return( 0 );
        otherwise;
      end;
end;
```

The compiler will issue this message for E15 sort exits unless the E15 sort exit specifies the OPTIONAL attribute as part of the RETURNS option on its PROCEDURE statement.

---

**IBM2661I W**      **The string *string value* appears more than once in the INLIST argument set.**

---

### Explanation

In INLIST( x, y1, y2, ... ), no y value should appear twice. This message will be produced only if the INLIST function is otherwise suitable for transformation into a branch table.

---

**IBM2662I W**      **INLIST argument set contains duplicate values.**

---

### Explanation

In INLIST( x, y1, y2, ... ), no y value should appear twice. This message will be produced only if the INLIST function is otherwise suitable for transformation into a branch table.

---

**IBM2663I W**      **WHEN clause contains an expression that matches the previous expression in the containing SELECT statement.**

---

### Explanation

In a SELECT statement, if a WHEN clause has the same expression as the previous expression in the WHEN clauses in that SELECT statement, then the code is probably in error. The compiler will not report

all such errors, but only those where an expression is duplicated in one of the four previous expressions.

---

**IBM2664I W**      **WHEN clause contains an expression that matches the expression *count* previous in the containing SELECT statement.**

---

### Explanation

In a SELECT statement, if a WHEN clause has the same expression as one of the earlier expressions in the WHEN clauses in that SELECT statement, then the code is probably in error. The compiler will not report all such errors, but only those where an expression is duplicated in one of the four previous expressions.

---

**IBM2665I W**      **EXTERNAL PLIXOPT declare specifies run-time options only if the variable has the attribute CHARACTER VARYING INITIAL and is not an array.**

---

### Explanation

If an EXTERNAL variable is intended to define LE runtime options, then it must be a scalar CHAR VARYING string with an INITIAL value.

---

**IBM2666I W**      **RETURN expression holds the address of a variable in AUTOMATIC storage.**

---

### Explanation

Returning the address of a variable in AUTOMATIC storage is likely to produce code that cannot work successfully.

---

**IBM2667I W**      **The string lengths in the declare for *first* depend on the size of *second* whose declare comes later in the block. Consider moving the first declare after the second.**

---

### Explanation

The extents in one declare should not depend on the size of a later declare. The compiler will swap the two declares, but this might introduce other problems. It might be better to move the first declare after the second.

---

**IBM2668I W**      **Using the VALUE function with the structure type *type* adds *count* bytes to the generated object.**

---



## Explanation

This message is produced if a typed structure with some VALUE attributes needs more bytes than allowed by the MAXINIT compiler option. Use of the VALUE type function will add a full copy of the structure to the generated object's constant area and may lead to binder problems.

---

**IBM2669I W      The *attribute keyword* attribute is ignored in an ALIAS definition.**

---

## Explanation

Attributes such as ALIGNED and UNALIGNED may be specified in a DEFINE ALIAS statement, but they will be ignored and should be removed.

---

**IBM2670I W      The parameter to MAIN should be declared as CHAR(\*) VARYING.**

---

## Explanation

The parameter to MAIN has a maximum length that depends on the system and should not be declared with a fixed maximum length.

---

**IBM2671I W      The variable *X* is passed as argument number *n* to entry *E*. The corresponding parameter has the *A* attribute, and hence the variable could be modified despite having the *D* attribute.**

---

## Explanation

Code like this could lead to a protection exception. In the following example, since the variable X is NONASSIGNABLE, the compiler could have passed the address of a constant fullword 17 to the routine TEST. If so, if E changed its parameter (as the attribute OUTONLY says it could), then a protection exception would result.

```
call oops( 17 );

test: proc( x );
  dcl x fixed bin(31) NONASSIGNABLE;
  dcl e ext entry( ASSIGNABLE fixed
bin(31) );
  call e(x);
end;
```

---

**IBM2672I W      If *extent-variable* is constant, then removing its STATIC attribute and changing its INITIAL attribute to the VALUE attribute would improve the performance of the generated code.**

---

## Explanation

Named constants should be declared with the VALUE attribute rather than the attributes STATIC INIT. This will cause the compiler to generate much better code. For example, in the following code, if ASIZE and CLEN are constant, then it would be much better to change their declares.

```
dcl asize fixed bin(31) static init(100);
dcl clen  fixed bin(31) static init(20);

dcl a(asize) char(clen);
```

---

**IBM2673I W      Boolean is compared with something other than a BIT(1) restricted expression.**

---

## Explanation

This message will flag statements such as the following. In the first IF statement, it would be better if "true" were a named constant, i.e. if it were declared with the VALUE attribute rather than STATIC INIT. In the second IF statement, the true/false value of (a < b) is compared to c, and this will be true for any value of c that is bigger than 1. The IF clause is probably meant to be (a < b) & (b < c).

```
dcl true bit(1) static init('1'b);

if ( a < b ) = true then

if a < b < c then
```

---

**IBM2674I W      The defined structure *struct name* is *alignment* byte aligned, but occupies only *storage size* bytes of storage. This may lead to addressing problems and data corruption.**

---

## Explanation

Defined structures must occupy a number of bytes that is a multiple of the structures alignment. So, for example, if a structure contains an aligned fixed bin(31) (or other aligned fullword) field as its most stringently aligned item, then the structure must occupy a multiple of 4 bytes. The following structure does not meet this requirement:

```
define structure
  1 point,
  2 x  fixed bin(31),
```

```
2 y char(1);
```

**IBM2675I W Use of PICTURE as DO control variable is not recommended.**

### Explanation

If the control variable in a DO loop is a PICTURE variable, then more code will be generated for the loop than if the control variable were a FIXED BIN variable. Moreover, such loops may easily be miscoded so that they will loop infinitely.

**IBM2676I W Code generated for DO group would be more efficient if control variable had type FIXED BIN with zero scale factor.**

### Explanation

The control variable in the DO loop has one of the types: scaled fixed binary, nonnative fixed binary, fixed decimal, or picture. Consequently, the code generated for the loop will not be optimal.

**IBM2677I W Generated code would be better if the declare for *variable name* were changed from AUTOMATIC to STATIC NONASSIGNABLE.**

### Explanation

The named variable is an array that is initialized but appears never to be changed. If it is constant, the compiler would not generate code to initialize it every time the block where it is declared is entered. This change could potentially significantly improve performance.

**IBM2678I W Loop will never be run. TO value may be incorrect.**

### Explanation

The DO statement has the form DO x = A to B; where A > B, or the form DO x = A to B BY -1; where A < B. This will cause the loop body to be skipped. One or more of the values A and B may be incorrect.

```
do jx = 11 to 10;
. . .
end;
```

**IBM2679I W GONUMBER(SEPARATE) changed to GONUMBER(NOSEPARATE) since the SEPARATE suboption for the GONUMBER option should**

**be specified only when the TEST option and its SEPARATE suboption are also specified.**

### Explanation

The GONUMBER can be placed in the SEPRATE sidefile only if the TEST options specifies that the sidefile should be created.

**IBM2680I W Code generated for DO group would perform better if control variable was STATIC or AUTOMATIC.**

### Explanation

The control variable in the DO loop should have storage class STATIC or AUTOMATIC and not PARAMETER and especially not BASED, DEFINED, or CONTROLLED,

**IBM2681I W Source has length *source-length* which is greater than the length of the source pattern *source-pattern*. Unless the source has enough leading blanks, invoking this REPATTERN will cause the ERROR condition to be raised. The required checking will also cause this REPATTERN not to be inlined.**

### Explanation

In REPATTERN( d, p, q ), if LENGTH( d ) is larger than LENGTH( q ), the code is valid only if d starts with as many blanks as the difference in those lengths.

**IBM2682I W The variable *name* needs *count* storage bytes which exceeds the MAXSTATIC limit.**

### Explanation

This message is produced if a STATIC variable requires more space than allowed by the MAXINIT compiler option.

**IBM2683I W SELECT statement contains more than *count* WHEN values. Optimization will be inhibited.**

### Explanation

Consider rewriting the code perhaps using the BINSEARCH built-in function to test the SELECT value.

**IBM2684I W The *name* built-in function will have a rollover problem in 2042. Use of the *name* built-in function is**

deprecated and support for it may be withdrawn in the future.

## Explanation

The PLISTCK and PLISTCKF built-in functions have a rollover problem that will occur on September 17, 2042. If any of these functions are used in date calculations, then this could cause errors. For example, a date derived from PLISTCK in October 2042 would appear to come before a date derived from PLISTCK in August 2042. It would be better to use a corresponding PLISTCKE function.

---

**IBM2685I W**     **Argument number *argument-number* in ENTRY reference *entry name* is a constant, but the corresponding parameter has the attribute OUTONLY.**

## Explanation

It is very questionable to pass a constant to a parameter that is declared as OUTONLY.

```
decl x entry( char(4) outonly );
call x( 'Test' );
```

---

**IBM2686I W**     **Argument number *argument-number* in ENTRY reference *entry name* is a constant, but the corresponding parameter has the explicit attribute INOUT.**

## Explanation

It is questionable to pass a constant to a parameter that is declared explicitly as INOUT.

```
decl x entry( char(4) inout );
call x( 'Test' );
```

---

**IBM2687I W**     **The scale factor *scale-factor* specified in the *BUILTIN name* built-in function is problematically large. Specifying a value greater than the sum of the two operand's scale factors (*scale factor* and *scale factor*) leads to spurious trailing zeros and increases the risk of an unnecessary overflow.**

## Explanation

In MULTIPLY(x,y,p,q), if x is FIXED DEC(p1,q1) and y is FIXED DEC(p2,q2), then it is very odd if q > (q1+q2). The requested excess fractional digits would always be equal to zero and producing them risks causing an overflow in the ADD.

---

**IBM2688I W**     ***target name* is assigned the address of *base name* which occupies *base size* bytes, but *target name* is also used as a locator for *located name* which requires *located size* bytes. This could lead to overwritten storage and data loss or other problems.**

## Explanation

This problem can arise with code as in the following example. The assignment to the variable B2 would overwrite the 11 bytes of storage after the bytes allocated the variable A1. If P1 were assigned the address of A2 before the assignment to B2, then that assignment would be ok.

```
decl b1 char(17) based(p);
decl b2 char(29) based(p);

decl a1 char(18);
decl a2 char(30);
decl p ptr;

p = addr(a1);
b1 = '';
b2 = '';
```

---

**IBM2689I W**     **Both AND operands are compares to test if the same expression is equal to a constant. This is odd, and the AND operator may have been meant to be an OR.**

## Explanation

This is probably a coding error. An expression of the form A = 1 & A = 2 is very odd.

---

**IBM2690I W**     **Both OR operands are compares to test if the same expression is not equal to a constant. This is odd, and the OR operator may have been meant to be an AND.**

## Explanation

This is probably a coding error. An expression of the form A <> 1 | A <> 2 is very odd.

---

**IBM2691I W**      **A dummy argument will be created for argument number *argument-number* in ENTRY reference *entry name* because of an alignment mismatch.**

### Explanation

An argument passed BYADDR to an entry does not match the corresponding parameter in the entry description but only because the alignments do not match. The address of the argument will not be passed to the entry. Instead, the argument will be assigned to a temporary, and the address of that temporary will be passed to the entry. This means that if the entry alters the value of this parameter, the alteration will not be visible in the calling routine.

```
dcl e entry( aligned fixed bin(31) );
dcl i unaligned fixed bin(31);
```

```
call e( i );
```

---

**IBM2692I W**      **The STCK and STCKF instructions will have a rollover problem in 2042. Use of the *name* built-in function is deprecated and support for it may be withdrawn in the future.**

### Explanation

The STCK and STCKF instructions have a rollover problem that will occur on September 17, 2042. If any date values derived from these instructions are used in date calculations, this could cause errors. For example, using STCKTODATE to compare a date derived from STCK in October 2042 would appear to come before a date derived from STCK in August 2042. It would be better to use a corresponding STCKE functions.

---

## Chapter 3. Compiler Error Messages (1226-1499, 2400-2599)

---

**IBM1226I E**      **Area extent is reduced to maximum value.**

### Explanation

The maximum size allowed for an AREA variable is 16777216.

---

**IBM1227I E**      **keyword statement is not allowed where an executable statement is required. A null statement will be inserted before the keyword statement.**

### Explanation

In certain contexts, for example after an IF-THEN clause, only executable statements are permitted. A DECLARE, DEFINE, DEFAULT or FORMAT statement has been found in one of these contexts. A null statement, (a statement consisting of only a semicolon) will be inserted before the offending statement.

---

**IBM1228I E**      **DEFAULT statement is not allowed where an executable statement is required. The DEFAULT statement will be enrolled in the current block, and a null statement will be inserted in its place.**

### Explanation

In certain contexts, for example after an IF-THEN clause, only executable statements are permitted. A DEFAULT statement has been found in one of these contexts. A null statement (a statement consisting of only a semicolon) will be inserted in place of the DEFAULT statement.

---

**IBM1229I E**      **FORMAT statement is not allowed where an executable statement is required. The FORMAT statement will be enrolled in the current block, and a null statement will be inserted in its place.**

### Explanation

In certain contexts, for example after an IF-THEN clause, only executable statements are permitted. A FORMAT statement has been found in one of these contexts. A null statement (a statement consisting

of only a semicolon) will be inserted in place of the FORMAT statement.

---

**IBM1230I E**      **Arguments have been specified for the variable *variable name*, but it is not an entry variable.**

### Explanation

Argument lists are valid only for ENTRY references.

```
dcl a(15) entry returns( fixed bin(31) );
i = a(3)(4);
```

---

**IBM1231I E**      **Arguments/subscripts have been specified for the variable *variable name*, but it is neither an entry nor an array variable.**

### Explanation

Argument/subscript lists are valid only for ENTRY and array references.

```
dcl a fixed bin;
i = a(3);
```

---

**IBM1232I E**      **RULES(NOLAXPUNC) violation: extraneous comma at end of statement ignored.**

### Explanation

A comma was followed by a semicolon rather than by a valid syntactical element (such as an identifier). The comma will be ignored in order to make the semicolon valid. The compiler no longer issues this message and instead issues message IBM1098I.

```
dcl 1 a, 2 b fixed bin, 2 c fixed bin, ;
```

---

**IBM1233I E**      **RULES(NOLAXPUNC) violation: missing *character* assumed.**

## Explanation

The indicated character is missing, and there are no more characters in the source. The missing character has been inserted by the parser in order to correct your source. Under RULES(LAXPUNC), a message with the same text, but lesser severity would be issued

---

**IBM1234I E**      **RULES(NOLAXPUNC) violation: missing character assumed before character.**

## Explanation

The indicated character is missing and has been inserted by the parser in order to correct your source. Under RULES(LAXPUNC), a message with the same text, but lesser severity would be issued

```
display( 'Program starting' ;
```

---

**IBM1235I E**      **No data format item in format list.**

## Explanation

Data items cannot be transmitted unless a data format item is given in the format list.

```
put edit ( (130) '- ' ) ( col(1) );
```

---

**IBM1236I E**      **Subscripts on keyword labels are ignored.**

## Explanation

A label specified on a PROCEDURE, PACKAGE or ENTRY statement should have no subscripts.

---

**IBM1237I E**      **EXTERNAL ENTRY attribute is assumed for variable-name.**

## Explanation

An undeclared variable is used with an arguments list. This should give it a contextual declaration as BUILTIN, but its name is not that of a built-in function.

---

**IBM1238I E**      **The second argument to the BUILTIN name built-in function is greater than the precision of the result.**

## Explanation

The sift amount in ISLL is should not be greater than the precision of the result.

```
i = isll( n, 221 );
```

---

**IBM1239I E**      **The attribute attribute is not supported and is ignored.**

## Explanation

The named attribute is either not part of the PL/I language or is not supported on this platform.

```
dcl f file transient;
```

---

**IBM1240I E**      **The attribute attribute is invalid in a RETURNS descriptor.**

## Explanation

The RETURNS descriptor may not specify an array.

```
dcl a entry returns( (12) fixed bin );
```

---

**IBM1241I E**      **Equality and inequality are the only valid comparisons of COMPLEX numbers.**

## Explanation

Equal and not equal are defined for complex variables, but you have attempted to relate them in some other way.

---

**IBM1242I E**      **Equality and inequality are the only valid comparisons of program control data.**

## Explanation

Other relationships between program control data are not defined. Perhaps a variable was misspelled.

---

**IBM1243I E**      **REGIONAL(integer specification (2 or 3)) ENVIRONMENT option is not supported.**

## Explanation

REGIONAL(2) and REGIONAL(3) ENVIRONMENT options are syntax-checked during compile-time but are not supported during run-time.

---

**IBM1244I E**      **The variable specified as the option value in an ENVIRONMENT option must be a STATIC scalar**

with the attributes **REAL FIXED BIN(31,0)**.

### Explanation

This applies to the KEYLENGTH, KEYLOC and RECSIZE suboptions.

---

**IBM1245I E**      **The variable specified as the *option* value in an **ENVIRONMENT** option must be a **STATIC** scalar with the attribute **CHARACTER**.**

---

### Explanation

This applies to the PASSWORD suboption.

---

**IBM1246I E**      **Argument to *BUILTIN name* built-in function should be **CONNECTED**.**

---

### Explanation

This message applies, for example, to the ADDR built-in function. The value returned by the ADDR function is the address of the first byte of its argument. If you use this pointer to refer to a based variable, the variable may be mapped over storage occupied by some other variable, rather than the storage occupied by the argument.

---

**IBM1247I E**      **RULES(NOLAXCONV) violation: arithmetic operands should both be numeric.**

---

### Explanation

The required implicit conversions will be performed, but this may indicate a programming error. This message will not be issued if the RULES(LAXCONV) option is specified.

```
i = i * '2';
```

---

**IBM1248I E**      **RULES(NOLAXCONV) violation: argument to *BUILTIN name* built-in function should have arithmetic type.**

---

### Explanation

The argument to the named built-in function should have arithmetic type. The required implicit conversion will be performed, but this may indicate a programming error. This message will not be issued if the RULES(LAXCONV) option is specified.

---

**IBM1249I E**      **Argument to *BUILTIN name* built-in function should have **CHARACTER** type.**

---

### Explanation

The argument to the named built-in function should have CHARACTER type. The required implicit conversion will be performed, but this may indicate a programming error.

---

**IBM1252I E**      **RULES(NOLAXCONV) violation: argument number *argument number* to *BUILTIN name* built-in function should have arithmetic type.**

---

### Explanation

The required implicit conversion will be performed, but this may indicate a programming error. This message will not be issued if the RULES(LAXCONV) option is specified.

```
x = max( x, y, z, '2' );
```

---

**IBM1254I E**      **RULES(NOLAXCONV) violation: arithmetic prefix operand should be numeric.**

---

### Explanation

The required implicit conversion will be performed, but this may indicate a programming error. This message will not be issued if the RULES(LAXCONV) option is specified.

```
a = - b;
```

---

**IBM1272I E**      **Argument number *argument number* to *BUILTIN name* built-in function is negative. It will be changed to 0.**

---

### Explanation

The second argument to built-in functions such as COPY and REPEAT must be nonnegative.

```
x = copy( y, -1 );
```

---

**IBM1273I E**      **Third argument to *BUILTIN* name built-in function is negative. It will be changed to 0.**

### Explanation

The third argument to built-in functions such as COMPARE, PLIFILL, and PLIMOVE must be nonnegative.

```
call plimove( a, b, -1 );
```

---

**IBM1274I E**      **RULES(NOLAXIF) violation: conditional expression does not have the attributes BIT(1).**

### Explanation

Expressions in IF, WHILE, UNTIL and undominated WHEN clauses should have the attributes BIT(1) NONVARYING. If not, the expression should be compared to an appropriate null value. This message will not be issued if the RULES(LAXIF) option is specified.

```
decl x bit(8) aligned;
...
if x then ...
```

---

**IBM1281I E**      **OPTIONS(RETCODE) on ATTACH reference is invalid and will be ignored.**

### Explanation

OPTIONS(RETCODE) is not supported on ATTACH references.

---

**IBM1287I E**      **RULES(NOLAXCONV) violation: exponentiation operands should have numeric type.**

### Explanation

In an expression of the form  $x^{**}y$ ,  $x$  and  $y$  should not have string type. This message will not be issued if the RULES(LAXCONV) option is specified.

---

**IBM1293I E**      **WIDECHAR extent is reduced to *maximum value*.**

### Explanation

The maximum length allowed for a WIDECHAR variable is set by the STRING suboption of the LIMITS option.

---

**IBM1294I E**      **BIT extent is reduced to *maximum value*.**

### Explanation

The maximum length allowed for a BIT variable is set by the STRING suboption of the LIMITS option.

---

**IBM1295I E**      **Sole bound specified is less than 1. An upper bound of 1 is assumed.**

### Explanation

The default lower bound is 1, but the upper bound must be greater than the lower bound.

```
decl x(-5) fixed bin;
```

---

**IBM1296I E**      **The BYADDR option conflicts with the SYSTEM option.**

### Explanation

The arguments passed to the MAIN procedure when SYSTEM(IMS) or SYSTEM(CICS) is in effect should not have the BYADDR attribute.

```
*process system(ims);
a: proc( x );
    decl x ptr byaddr;
```

---

**IBM1297I E**      **Source and target in BY NAME assignment have no matching assignable base identifiers.**

### Explanation

In a BY NAME, the source and target structures should have at least one matching base element identifier.

```
decl 1 a, 2 b, 2 c, 2 d;
decl 1 w, 2 x, 2 y, 2 z;
a = w, by name;
```

---

**IBM1298I E**      **Characters in B3 literals must be 0-7.**



## Explanation

In a B3 literal, each character must be either 0-7.

---

**IBM1299I E** **CHARACTER extent is reduced to maximum value.**

---

## Explanation

The maximum length allowed for a CHARACTER variable is set by the STRING suboption of the LIMITS option.

---

**IBM1300I E** **RULES(NOLAXDCL) violation: variable name is contextually declared as attribute.**

---

## Explanation

This is an E-level message because RULES(NOLAXDCL) has been specified.

---

**IBM1301I E** **A DECIMAL exponent is required.**

---

## Explanation

An E in a FLOAT constant must be followed by at least one decimal digit (optionally preceded by a sign).

---

**IBM1302I E** **The limit on the number of DEFAULT predicates in a block has already been reached. This and subsequent DEFAULT predicates in this block will be ignored.**

---

## Explanation

Each block should contain no more than 31 DEFAULT predicates.

---

**IBM1303I E** **A second argument to the BUILTIN name built-in function must be supplied for arrays with more than one dimension. A value of 1 is assumed.**

---

## Explanation

The LBOUND, HBOUND, and DIMENSION built-in functions require two arguments when applied to arrays having more than one dimension.

```
decl a(5,10) fixed bin;
do i = 1 to lbound(a);
```

---

**IBM1304I E** **Second argument to BUILTIN name built-in function is not positive. A value of 1 is assumed.**

---

## Explanation

The DIMENSION, HBOUND and LBOUND built-in functions require that the second argument be positive.

---

**IBM1305I E** **Second argument to BUILTIN name built-in function is greater than the number of dimensions for the first argument. A value of dimension count is assumed.**

---

## Explanation

The second argument to the LBOUND, HBOUND, and DIMENSION built-in functions must be no greater than the number of dimensions of their array arguments.

```
decl a(5,10) fixed bin;
do i = 1 to lbound(a,3);
```

---

**IBM1306I E** **Repeated declaration of identifier is invalid and will be ignored.**

---

## Explanation

Level 1 variable names must not be repeated in the same block.

```
decl a fixed bin, a float;
```

---

**IBM1307I E** **Duplicate specification of arithmetic precision. Subsequent specification ignored.**

---

## Explanation

The precision attribute must be specified only once in a declare.

```
decl a fixed(15) bin(31);
```

---

**IBM1308I E** **Repeated declaration of identifier is invalid. The name will be replaced by an asterisk.**

---

## Explanation

The variable names at any given sublevel within a structure or union must be unique.

```
dcl 1 a, 2 b fixed, 2 b float;
```

**IBM1309I E**      **Duplicate specification of attribute. Subsequent specification ignored.**

### Explanation

Attributes like INITIAL must not be repeated for an element of a DECLARE statement.

```
dcl a fixed init(0) bin init(2);
```

**IBM1310I E**      **The attribute *character* conflicts with previous attributes and is ignored.**

### Explanation

Attributes must be consistent.

```
dcl a fixed real float;
```

**IBM1311I E**      **EXTERNAL name contains no non-blank characters and is ignored.**

### Explanation

The external name should contain some nonblank characters.

```
dcl x external( ' ' );
```

**IBM1312I E**      **WX literals should contain a multiple of 4 hex digits.**

### Explanation

WX literals must represent unicode strings and hence must contain a multiple of 4 hex digits.

```
x = '00'wx;
```

**IBM1314I E**      **ELSE clause outside of an open IF-THEN statement is ignored.**

### Explanation

ELSE clauses are valid immediately after an IF-THEN statement.

```
do; if a > b then; end; else a = 0;
```

**IBM1315I E**      **END label matches a label on an open group, but that group label is subscripted.**

### Explanation

END statements for groups with a subscripted label must have labels that are also subscripted.

```
a(1): do;  
...  
end a;
```

**IBM1316I E**      **END label is not a label on any open group.**

### Explanation

A Label on END statement must match a LABEL on an open BEGIN, DO, PACKAGE, PROCEDURE, or SELECT statement.

```
a: do;  
...  
end b;
```

**IBM1317I E**      **An END statement may be missing after an OTHERWISE unit. One will be inserted.**

### Explanation

After an OTHERWISE unit in a SELECT statement, only an END statement is valid.

```
select;  
  when ( ... )  
  do;  
  end;  
  otherwise  
  do;  
  end;  
  display( .... );
```

**IBM1318I E**      **The ENVIRONMENT option *option-name* conflicts with preceding ENVIRONMENT options. This option will be ignored.**

Explanation

There was a conflict detected in the ENVIRONMENT options specification. In the example ENV(CONSECUTIVE INDEXED), the INDEXED option conflicts with the CONSECUTIVE option.

IBM1319I E	STRINGSIZE condition raised while evaluating expression. Result is truncated.
------------	---

Explanation

During the conversion of a user expression during the compilation, the target string was found to be shorter than the source, thus causing the STRINGSIZE condition to be raised.

IBM1320I E	STRINGRANGE condition raised while evaluating expression. Arguments are adjusted to fit.
------------	--

Explanation

If all the arguments in a SUBSTR reference are constants or restricted expressions, the reference will be evaluated at compile- time and the STRINGRANGE condition will occur if the arguments do not comply with the rules described for the SUBSTR built-in function.

```
a = substr( 'abcdef', 5, 4 );
```

IBM1321I E	LEAVE/ITERATE label matches a label on an open DO group, but that DO group label is subscripted.
------------	--

Explanation

LEAVE/ITERATE statements for groups with a subscripted label must have labels that are also subscripted.

```
a(1): do;  
...  
leave a;
```

IBM1322I E	LEAVE/ITERATE label is not a label on any open DO group in its containing block.
------------	--

Explanation

LEAVE/ITERATE must specify a label on an open DO loop in the same block as the LEAVE/ITERATE statement.

```
a: do loop;  
begin;  
leave a;
```

IBM1323I E	ITERATE/LEAVE statement is invalid outside an open DO statement. The statement will be ignored.
------------	---

Explanation

ITERATE/LEAVE statements are valid only inside DO groups.

```
a: begin;  
...  
leave a;  
...  
end a;
```

IBM1324I E	The name <i>name</i> occurs more than once in the EXPORTS clause.
------------	---

Explanation

Names in the EXPORTS clause of a package statement must be unique.

```
a: package exports( a1, a2, a1 );
```

IBM1325I E	The name <i>name</i> occurs in the EXPORTS clause, but is not the name of any nonnested PROCEDURE.
------------	--

Explanation

Each name in the EXPORTS clause of a package statement must be the name of some level-1 procedure in that package.

```
a: package exports( a1, a2, a3 );
```

IBM1326I E	Variables declared without a name must be structure members or followed by a substructure list.
------------	---

Explanation

An asterisk may be used only for structure or union names, or for members of structures or unions. An

asterisk may not be used for a level-1 structure name that specifies the LIKE attribute.

```
    dcl * char(20) static init('who can use  
me');
```

---

**IBM1327I E**      **The CHARACTER VARYING parameter to MAIN should be ASCII with the attribute NATIVE.**

### Explanation

If the parameter is EBCDIC or has the attribute NONNATIVE, unpredictable results can occur.

---

**IBM1328I E**      **The CHARACTER VARYING parameter to MAIN should be EBCDIC with the attribute BIGENDIAN.**

### Explanation

If the parameter is ASCII or has the attribute LITTLEENDIAN, unpredictable results can occur. This message applies only to SYSTEM(MVS) etc.

---

**IBM1329I E**      **ENTRY statements are not allowed under RULES(NOMULTIENTRY).**

### Explanation

Under RULES(NOMULTIENTRY), there should be no ENTRY statements in your source program.

---

**IBM1330I E**      **The I in an iSUB token must be bigger than zero. A value of 1 is assumed.**

### Explanation

The I in an iSUB token must represent a valid dimension number.

```
    dcl b(8) fixed bin def(0sub,1);
```

---

**IBM1331I E**      **The I in an iSUB token must have no more than 2 digits. A value of 1 is assumed.**

### Explanation

The I in an iSUB token must have only 1 or 2 digits.

```
    dcl b(8) fixed bin def(001sub,1);
```

---

**IBM1332I E**      **The *format-item* format item requires an argument when used**

**in GET statement. A value of 1 is assumed.**

### Explanation

A width must be specified on A, B, and G format items when specified on a GET statement.

```
    get edit(name) (a);
```

---

**IBM1333I E**      **Non-asterisk array bounds are not permitted in GENERIC descriptions.**

### Explanation

All array bounds in generic descriptions must be asterisks.

```
    dcl x generic ( e1 when( (10) fixed ), ...
```

---

**IBM1334I E**      **String lengths and area sizes are not permitted in GENERIC descriptions.**

### Explanation

All string lengths and area sizes in generic descriptions must be asterisks.

```
    dcl x generic ( e1 when( char(10) ), ...
```

---

**IBM1335I E**      **Entry description lists are not permitted in GENERIC descriptions.**

### Explanation

Any ENTRY attribute in a generic description list must not be qualified with an entry description list.

```
    dcl x generic ( e1 when( entry( ptr ) ), ...
```

---

**IBM1336I E**      **GRAPHIC extent is reduced to *maximum value*.**

### Explanation

The maximum length allowed for a GRAPHIC variable is set by the STRING suboption of the LIMITS option.

---

**IBM1337I E**      **GX literals should contain a multiple of 4 hex digits.**

### Explanation

GX literals must represent graphic strings and hence must contain a multiple of 4 hex digits.

```
x = '00'gx;
```

---

**IBM1338I E**      **Upper bound is less than lower bound. Bounds will be reversed.**

### Explanation

A variable has been declared with an upper bound that is less than its lower bound. The upper and lower bounds will be swapped in order to correct this. For example, DECLARE x(3:1) will be changed to DECLARE x(1:3).

---

**IBM1339I E**      **Identifier is too long. It will be collapsed to *identifier*.**

### Explanation

The maximum length of an identifier is set by the NAME suboption of the LIMITS compiler option.

---

**IBM1340I E**      **Argument number *argument-number* in ENTRY reference *ENTRY name* contains BIT data. NOMAP is assumed.**

### Explanation

An argument containing BIT data has been found in a call to a COBOL routine. Mapping of such structures between PL/I and COBOL is not supported.

```
dc1 f ext entry options( cobol );
dc1 1 a, 2 b bit(8), 2 c bit(8);
call f( a );
```

---

**IBM1341I E**      **Argument number *argument-number* in ENTRY reference *ENTRY name* is or contains a UNION. NOMAP is assumed.**

### Explanation

An argument containing UNION data has been found in a call to a COBOL routine. Mapping of such structures between PL/I and COBOL is not supported.

```
dc1 f ext entry options( cobol );
dc1 1 a union, 2 b char(4), 2 c fixed
bin(31);
call f( a );
```

---

**IBM1342I E**      **Argument number *argument-number* in ENTRY reference *ENTRY name* contains non-constant extents. NOMAP is assumed.**

### Explanation

An argument containing non-constant extents has been found in a call to a COBOL routine. Mapping of such structures between PL/I and COBOL is not supported.

```
dc1 f ext entry options( cobol );
dc1 n static fixed bin init(17);
dc1 1 a, 2 b char(n), 2 c fixed bin(31);
call f( a );
```

---

**IBM1343I E**      ***nomap-suboption* is invalid as a suboption of *option*.**

### Explanation

The suboption should be specified as ARGn where "n" is an integer greater than 0.

```
dc1 f ext entry options( cobol
nomap(arg0) );
```

---

**IBM1344I E**      **NOMAP specifications are valid only for ILC routines.**

### Explanation

NOMAP, NOMAPIN and NOMAPOUT are valid only for COBOL, FORTRAN and ASM Procedures and Entrys.

---

**IBM1345I E**      **Initial level number in a structure is not 1.**

### Explanation

The level-1 DECLARE statement may be missing.

```
dc1
 2 a,
```

```
3 b,  
3 c,
```

---

**IBM1346I E**      **INIT expression should be enclosed in parentheses.**

### Explanation

This is required to avoid ambiguities. For example, it is unclear whether all of the elements should be initialized with the value 4 or if the first element should be initialized with the value 9.

```
dcl a(5) fixed bin init( (5)+4 );
```

---

**IBM1347I E**      **B assumed to complete iSUB.**

### Explanation

There is no language element of the form 1su.

```
dcl a(10) def b(1su, 1sub );
```

---

**IBM1348I E**      **Digit in BINARY constant is not zero or one.**

### Explanation

In a BINARY constant, each digit must be a zero or one.

---

**IBM1349I E**      **Characters in BIT literals must be 0 or 1.**

### Explanation

In a BIT literal, each character must be either zero or one.

---

**IBM1350I E**      **Character with decimal value *n* does not belong to the PL/I character set. It will be ignored.**

### Explanation

The indicated character is not part of the PL/I character set. This can occur if a program containing NOT or OR symbols is ported from another machine and those symbols are translated to a character that is not part of the PL/I character set. Using the NOT and OR compiler options can help avoid this problem.

---

**IBM1351I E**      **Characters in hex literals must be 0-9 or A-F.**

### Explanation

In a hex literal, each character must be either 0-9 or A-F.

---

**IBM1352I E**      **The statement element *character* is invalid. The statement will be ignored.**

### Explanation

The statement entered could not be parsed because the specified element is invalid.

---

**IBM1354I E**      **Multiple argument lists are valid only with the last identifier in a reference.**

### Explanation

A reference of the form x(1)(2).y.z is invalid.

---

**IBM1355I E**      **Empty argument lists are valid only with the last identifier in a reference.**

### Explanation

A reference of the form x().y.z is invalid.

---

**IBM1356I E**      **Character with decimal value *n* does not belong to the PL/I character set. It is assumed to be an OR symbol.**

### Explanation

The indicated character is not part of the PL/I character set, but was immediately followed by the same character. This can occur if a program containing an OR symbol is ported from another machine and this symbol is translated to a character that is not part of the PL/I character set. Using the OR compiler option can help avoid this problem.

---

**IBM1357I E**      **Character with decimal value *n* does not belong to the PL/I character set. It is assumed to be a NOT symbol.**

### Explanation

The indicated character is not part of the PL/I character set, but was immediately followed by an =, < or > symbol. This can occur if a program containing a NOT symbol is ported from another machine and this symbol is translated to a character that is not part of the PL/I character set. Using the NOT compiler option can help avoid this problem.

**IBM1358I E**      **The scale factor specified in *BUILTIN* name built-in function with a floating-point argument must be positive. It will be changed to 1.**

### Explanation

This applies to the ROUND built-in function. The non-positive value will be changed to 1.

```
dcl x float bin(53);
x = round( x, -1 );
```

**IBM1359I E**      **Names in *RANGE(identifier:identifier)* are not in ascending order. Order is reversed.**

### Explanation

The names must be in ascending order.

```
default range( h : a ) fixed bin;
```

**IBM1360I E**      **The name *identifier* has already been defined as a *FORMAT* constant.**

### Explanation

The name of a FORMAT constant cannot be used as the name of a LABEL constant as well.

```
f(1): format( a, x(2), a );
f(2): ;
```

**IBM1361I E**      **The name *identifier* has already been defined as a *LABEL* constant.**

### Explanation

The name of a LABEL constant cannot be also used as the name of a FORMAT constant.

```
f(1): ;
f(2): format( a, x(2), a );
```

**IBM1362I E**      **The label *label-name* has already been declared. The explicit**

**declaration of the label will not be accepted.**

### Explanation

Declarations for label constant arrays are not permitted.

```
dcl a(10) label variable;
a(1): ...
a(2): ...
```

**IBM1363I E**      **Structure level greater than 255 specified. It will be replaced by 255.**

### Explanation

The maximum structure level supported is 255.

```
dcl
  1 a,
 256 b,
  2 c,
```

**IBM1364I E**      **Elements with level numbers greater than 1 follow an element without a level number. A level number of 1 is assumed.**

### Explanation

A structure level is probably missing.

```
dcl
  a,
  2 b,
  2 c,
```

**IBM1365I E**      **Statement type resolution requires too many lexical units to be examined. The statement will be ignored.**

### Explanation

To determine if a statement is an assignment or another PL/I statement, many elements of the statement may need to be examined. If too many have to be examined, the compiler will flag the statement as in error. For instance, the following statement could be a DECLARE until the equal sign is encountered by the lexer.

```
dc1 ( a, b, c ) = d;
```

**IBM1366I E**      **Level number following LIKE specification is greater than than the level number for the LIKE specification. LIKE attribute will be ignored.**

### Explanation

LIKE cannot be specified on a parent structure or union.

```
dc1
  1 a like x,
  2 b,
  2 c,
```

**IBM1367I E**      **Statements inside a SELECT must be preceded by a WHEN or an OTHERWISE clause. Statement is ignored.**

### Explanation

A WHEN or OTHERWISE may be missing.

```
select;
  i = i + 1;
  when ( a > 0 )
  ...
```

**IBM1368I E**      **The attribute *character* is invalid if it is not followed by an element with a greater logical level.**

### Explanation

The named attribute is valid only on parent structures.

```
dc1
  1 a,
  2 b union,
  2 c1 fixed bin(31),
  2 c2 float bin(21),
  ...
```

**IBM1369I E**      **MAIN has already been specified in the PACKAGE.**

### Explanation

OPTIONS(MAIN) may be specified for only one PROCEDURE in a PACKAGE. All but the first specification will be ignored.

**IBM1370I E**      **Extent expression is negative. It will be replaced by the constant 1.**

### Explanation

Extents must be positive.

```
dc1 x char(-10);
```

**IBM1371I E**      **RULES(NOLAXQUAL) violation: structure element *identifier* is not dot qualified.**

### Explanation

Under the option RULES(NOLAXQUAL), all structure elements should be qualified with the name of at least one of their parents.

**IBM1372I E**      **EXTERNAL specified on internal entry point.**

### Explanation

The EXTERNAL attribute is valid only on external procedures and entrys: for example, in a non-package, only on the outermost procedure and entry statements contained in it, and in a package, only on the procedures and entrys listed in the EXPORTS clause of the PACKAGE statement.

```
a: proc;
  b: proc ext('_B');
```

**IBM1373I E**      **RULES(NOLAXDCL) violation: variable *variable name* is implicitly declared.**

### Explanation

Under the RULES(NOLAXDCL) option, all variables must be declared except for contextual declarations of built-in functions, SYSPRINT and SYSIN.

**IBM1374I E**      **Contextual attributes conflicting with PARAMETER will not be applied to *variable name*.**



## Explanation

Only those contextual attributes that can be applied to a parameter will be applied. For example, `CONSTANT` and `EXTERNAL`, which apply to contextual file declarations, will not be applied to file parameters.

```
a: proc( f );  
    open file( f );
```

---

**IBM1375I E**      The **DEFINED** variable *variable name* does not fit into its base variable.

## Explanation

The number of bits, characters or graphics needed for a `DEFINED` variable must be no more than in the base variable.

```
dcl a char(10);  
dcl b char(5) defined ( a ) pos( 8 );
```

---

**IBM1376I E**      Factoring of level numbers into declaration lists containing level numbers is invalid. The level numbers in the declaration list will be ignored.

## Explanation

Only attributes can be factored into declaration lists.

```
dcl 1 a, 2 ( b, 3 c, 3 d ) fixed;
```

---

**IBM1377I E**      A scale factor has been specified as an argument to the *BUILTIN name* built-in function, but the result of that function has type **FLOAT**. The scale factor will be ignored.

## Explanation

Scale factors are valid only for `FIXED` values.

```
x = binary(1e0,4,2);
```

---

**IBM1378I E**      An arguments list or subscripts list has been provided for a

**GENERIC ENTRY** reference. It will be ignored.

## Explanation

`GENERIC` entry references are not allowed to contain an arguments or subscripts list.

```
dcl t generic( sub1(10) when((*)),  
               sub2      when((*,*)) );
```

---

**IBM1379I E**      Locator qualifier for **GENERIC** reference is ignored.

## Explanation

`GENERIC` references cannot be locator-qualified.

```
dcl x generic ( ... );  
call p->x;
```

---

**IBM1380I E**      Target structure in assignment contains no elements with the **ASSIGNABLE** attribute. No assignments will be generated.

## Explanation

In an assignment to a structure, some element of the structure must have the assignable attribute.

```
dcl  
  1 a based,  
  2 nonasgn fixed bin,  
  2 nonasgn fixed bin;  
  
p->a = 0;
```

---

**IBM1381I E**      **DEFINED** base for a **BIT** structure should be aligned.

## Explanation

If a `BIT` structure (or union) is defined on a variable that is not aligned on a byte boundary, unpredictable results may occur. This is especially true if a substructure of the `DEFINED` variable is passed to another routine.

---

**IBM1382I E**      **INITIAL** attribute is invalid for **STATIC FORMAT** variables. Storage class is changed to **AUTOMATIC**.

### Explanation

FORMAT variables require block activation information; they cannot be initialized at compile-time. If the variable were a member of a structure, the storage class would not be changed to AUTOMATIC, and a severe message would be issued instead.

**IBM1383I E**      Labels on *keyword* statements are invalid and ignored.

### Explanation

Labels are not permitted on DECLARE, DEFAULT, and DEFINE statements or on WHEN and OTHERWISE clauses.

**IBM1384I E**      *message*

### Explanation

This message is used to report back end error messages.

**IBM1385I E**      Invalid **DEFINED** - string overlay defining attempted.

### Explanation

The base variable in the **DEFINED** attribute must consist of **UNALIGNED**, **NONVARYING** string variables of the same string type as the **DEFINED** variable.

**IBM1386I E**      **DEFINED** base for a **BIT** variable should not be subscripted.

### Explanation

When one bit variable is defined on a second (the base), the base may be an array, but it must not be subscripted.

```
dcl a(20) bit(8) unaligned;
dcl b bit(8) defined( a(3) );
```

**IBM1387I E**      The **NODESCRIPTOR** attribute is invalid when any parameters have \* extents. The **NODESCRIPTOR** attribute will be ignored.

### Explanation

A parameter can have \* extents only if a descriptor is also passed. The **NODESCRIPTOR** attribute will be ignored, and descriptors will be assumed to have been passed for all array, structure and string arguments.

```
a: proc( x ) options(nodescriptor);
    dcl x char(*);
```

**IBM1388I E**      The **NODESCRIPTOR** attribute is invalid when any parameters have the **NONCONNECTED** attribute.

### Explanation

A parameter can have the **NONCONNECTED** attribute only if a descriptor is also passed.

```
a: proc( x ) options(nodescriptor);
    dcl x(20) fixed bin nonconnected;
```

**IBM1389I E**      The identifier *identifier* is not the name of a built-in function. The **BUILTIN** attribute will be ignored.

### Explanation

The **BUILTIN** attribute can be applied only to identifiers that are the names of built-in functions or subroutines.

**IBM1390I E**      *note*

### Explanation

This message is used by %NOTE statements with a return code of 8.

**IBM1391I E**      End-of-source has been encountered after an unmatched comment marker.

### Explanation

An end-of-comment marker is probably missing.

**IBM1392I E**      End-of-source has been encountered after an unmatched quote.

### Explanation

A closing quote is probably missing.

**IBM1393I E**      Item in **OPTIONS** list conflicts with other attributes in the declaration. *option-name* is ignored.

### Explanation

The indicated element of the options list is invalid.

```
dcl a file options( assembler );
```

**IBM1394I E**      **Item in OPTIONS list is invalid for BEGIN blocks. *option-name* is ignored.**

### Explanation

The indicated element of the options list is invalid for BEGIN blocks (although it may be valid for PROCEDURES).

```
begin options( assembler );
```

**IBM1395I E**      **Item in OPTIONS list is invalid for PACKAGES. *option-name* is ignored.**

### Explanation

The indicated element of the options list is invalid for PACKAGES (although it may be valid for PROCEDURES).

```
a: package exports(*) options( assembler );
```

**IBM1396I E**      **Item in OPTIONS list is invalid for PROCEDURES. *option-name* is ignored.**

### Explanation

The indicated element of the options list is invalid for PROCEDURES (although it may be valid for ENTRYs).

```
a: procedure options( inter );
```

**IBM1397I E**      **Item in OPTIONS list is invalid for nested PROCEDURES. *option-name* is ignored.**

### Explanation

The indicated element of the options list is invalid for nested PROCEDURES (although it may be valid for PROCEDURES).

```
a: proc;  
b: proc options( main );
```

**IBM1398I E**      **Invalid item in OPTIONS list. *option-name* is ignored.**

### Explanation

The indicated element of the options list is not a supported option in any statement or declaration.

```
a: proc options( unknown );
```

**IBM1399I E**      **Item in OPTIONS list is invalid for ENTRY statements. *option-name* is ignored.**

### Explanation

The indicated element of the options list is invalid for ENTRY statements (although it may be valid for PROCEDURES).

```
a: entry options( chargraphic );
```

**IBM1400I E**      **Item in OPTIONS list conflicts with preceding items. *option-name* is ignored.**

### Explanation

The elements of the options list must be consistent, unlike in the example where BYVALUE and BYADDR conflict.

```
a: proc options( byvalue byaddr );
```

**IBM1401I E**      **Parameter attributes have been specified for a variable that is not a parameter. The parameter attributes are ignored.**

### Explanation

Parameter attributes, such as BYVALUE or CONNECTED, may be specified only for parameters.

```
a: proc;  
dcl x byvalue ptr;
```

**IBM1402I E**      **Constant in POSITION attribute is less than 1.**

## Explanation

The POSITION attribute must specify a positive value.

```
decl a def b pos(-10);
```

**IBM1403I E**      **The end of the source was reached before the logical end of the program. Null statements and END statements will be inserted as necessary to complete the program.**

## Explanation

The source should contain END statements for all PACKAGEs, PROCEDUREs, BEGIN blocks, DO groups, and SELECT statements, as well as statements for all IF-THEN and ELSE clauses.

**IBM1404I E**      **The PROCEDURE name *proc-name* has already been declared. The explicit declaration of the PROCEDURE name will not be accepted.**

## Explanation

Declarations for internal procedures are not permitted.

```
a: proc;
decl b entry options(byvalue);
b: proc;
```

**IBM1405I E**      **Only one description is allowed in a returns descriptor.**

## Explanation

A function can return only one value.

```
decl b entry returns( ptr, ptr );
```

**IBM1406I E**      **The product of the repetition factor *repetition-factor* and the length of the constant *string* to which it is applied is greater than the maximum length allowed for a constant. The repetition factor will be ignored.**

## Explanation

The string represented by a repetition factor applied to another string must conform to the same limits imposed on strings without repetition factors.

```
a = (32767) 'abc';
```

**IBM1407I E**      **Scale factor is bigger than 127. It will be replaced by 127.**

## Explanation

Scale factors must lie between -128 and 127 inclusive.

**IBM1408I E**      **Scale factor is less than -128. It will be replaced by -128.**

## Explanation

Scale factors must lie between -128 and 127 inclusive.

**IBM1409I E**      **A SELECT statement may be missing. A SELECT statement, without an expression, will be inserted.**

## Explanation

A WHEN or OTHERWISE clause has been found outside of a SELECT statement.

**IBM1410I E**      **Semicolon inserted after ELSE keyword.**

## Explanation

An END statement enclosing a statement such as DO or SELECT has been found before the statement required after ELSE.

```
do;
  if a > b then
    ...
  else
end;
```

**IBM1411I E**      **Semicolon inserted after ON clause.**

## Explanation

An END statement enclosing a statement such as DO or SELECT has been found before the statement required after ON condition.

```
do;
  ...
  on zdiv
end;
```

---

**IBM1412I E**      **Semicolon inserted after OTHERWISE keyword.**

### Explanation

An END statement may be misplaced or a semicolon may be missing.

---

**IBM1413I E**      **Semicolon inserted after THEN keyword.**

### Explanation

An END statement may be misplaced or a semicolon may be missing.

---

**IBM1414I E**      **Semicolon inserted after WHEN clause.**

### Explanation

An END statement may be misplaced or a semicolon may be missing.

---

**IBM1415I E**      **Source file does not end with the logical end of the program.**

### Explanation

The source file contains statements after the END statement that closed the first PACKAGE or PROCEDURE. These statements will be ignored, but their presence may indicate a programming error.

---

**IBM1416I E**      **Subscripts have been specified for the variable *variable name*, but it is not an array variable.**

### Explanation

Subscripts can be specified only for elements of an array.

---

**IBM1417I E**      **Second argument in *BUILTIN name* reference is less than 1. It will be replaced by 1.**

### Explanation

Otherwise the STRINGRANGE condition would be raised.

---

**IBM1418I E**      **Second argument in *BUILTIN name* reference is too big. It will be trimmed to fit.**

### Explanation

Otherwise the STRINGRANGE condition would be raised.

---

**IBM1419I E**      **Third argument in *BUILTIN name* reference is less than 0. It will be replaced by 0.**

### Explanation

Otherwise the STRINGRANGE condition would be raised.

---

**IBM1420I E**      **The factor in *K/M constant* is too large and is replaced by *maximum factor*.**

### Explanation

The maximum K constant is 2097151K, and the maximum M constant is 2047M.

---

**IBM1421I E**      **More than 15 dimensions have been specified. Excess will be ignored.**

### Explanation

The maximum number of dimensions allowed for a variable, including all inherited dimensions, is 15.

---

**IBM1423I E**      **UNALIGNED attribute conflicts with AREA attribute.**

### Explanation

All AREA variables must be ALIGNED.

---

**IBM1424I E**      **End of comment marker found when there are no open comments. Marker will be ignored.**

### Explanation

An \*/ was found when there was no open comment.

---

**IBM1425I E**      **There is no compiler directive *directive*. Input up to the next semicolon will be ignored.**

### Explanation

See the Language Reference Manual for the list of supported compiler directives.

---

**IBM1426I E**      **Structure level of 0 replaced by 1.**

### Explanation

Structure level numbers must be positive.

**IBM1427I E**      **Numeric precision of 0 replaced by 1.**

### Explanation

Numeric precisions must be positive.

**IBM1428I E**      **X literals should contain a multiple of 2 hex digits.**

### Explanation

An X literal may not contain an odd number of digits.

**IBM1429I E**      **INITIAL attribute for REFER object variable name is invalid.**

### Explanation

In DCL 1 a BASED, 2 b FIXED BIN INIT(3), 2 c( n REFER(b)), the initial clause for 'b' is invalid and may lead to unpredictable results.

**IBM1432I E**      **The type *type name* is already defined. The redefinition is ignored.**

### Explanation

A named type may be defined only once in any block.

**IBM1433I E**      **The name *name* occurs more than once in the RESERVES clause.**

### Explanation

Names in the RESERVES clause of a package statement must be unique.

```
a: package reserves( a1, a2, a1 );
```

**IBM1434I E**      **The name *name* occurs in the RESERVES clause, but is not the name of any level 1 STATIC EXTERNAL variable.**

### Explanation

Each name in the RESERVES clause of a package statement must be the name of some level-1 static external variable in that package.

```
a: package reserves( a1, a2, a3 );
```

**IBM1435I E**      **A precision value less than 1 has been specified as an argument**

**to the *BUILTIN name* built-in function. It will be replaced by 15.**

### Explanation

Precision values must be positive.

```
middle = divide( todo, 2, 0 );
```

**IBM1436I E**      **The scale factor specified as an argument to the *BUILTIN name* built-in function is out of the valid range. It will be replaced by the nearest valid value.**

### Explanation

Scale factors must be between -128 and 127 inclusive.

```
f = fixed( i, 15, 130 );
```

**IBM1437I E**      **The second argument to the *BUILTIN name* built-in function is greater than the maximum FIXED BINARY precision. It will be replaced by the maximum value.**

### Explanation

The maximum FIXED BINARY precision supported allowed depends on the FIXEDBIN suboption of the LIMITS option.

```
i = signed( n, 63 );
```

**IBM1438I E**      **Excess arguments for ENTRY *ENTRY name* ignored.**

### Explanation

More arguments were specified in an ENTRY reference than were defined as parameters in that ENTRY's declaration.

```
dcl e entry( fixed bin );
call e( 1, 2 );
```

**IBM1439I E**      **Excess arguments for *BUILTIN name* built-in function ignored.**

## Explanation

More arguments were specified for the indicated built-in function than are supported by that built-in function.

```
i = acos( j, k );
```

---

**IBM1441I E**      **ENTRY/RETURNS description lists for comparands do not match.**

## Explanation

In a comparison of two ENTRY variables or constants, the ENTRY and RETURNS description lists should match. The linkages must also match.

```
dcl e1 entry( fixed ), e2 entry( float );
if e1 = e2 then
```

---

**IBM1442I E**      **The ENTRY/RETURNS description lists in the ENTRY to be assigned to *target variable* do not match those of the target variable.**

## Explanation

In an assignment of an ENTRY variable or constant, the ENTRY and RETURNS description lists for the source should match those of the target. The linkages must also match.

```
dcl e1 variable entry( fixed ), e2
entry( float );
e1 = e2;
```

---

**IBM1443I E**      **An ENTRY/RETURNS description list in an ENTRY in the INITIAL list for *target variable* do not match those of the target variable.**

## Explanation

When initializing an ENTRY variable or constant, the ENTRY and RETURNS description lists for the source should match those of the target. The linkages must also match.

```
dcl e1 variable entry( fixed );
dcl e2 variable entry( float ) init( e1 );
```

---

**IBM1444I E**      **The ENTRY/RETURNS description lists in the RETURN statement do not match those in the corresponding RETURNS attribute**

## Explanation

When a function returns an ENTRY variable or constant, the ENTRY and RETURNS description lists in the returned ENTRY reference should match those in the containing procedure's RETURNS option. The linkages must also match.

```
a: proc returns( entry( float ) );
dcl e1 entry( fixed );
return( e1 );
```

---

**IBM1445I E**      **The ENTRY/RETURNS description lists for argument number *argument-number* in ENTRY reference *entry name* do not match those in the corresponding parameter.**

## Explanation

This message also occurs if the linkages do not match.

```
dcl a entry( entry( float ) );
dcl e1 entry( fixed );
call a( e1 );
```

---

**IBM1446I E**      **Third argument in *BUILTIN name* reference is too big. It will be trimmed to fit.**

## Explanation

Otherwise the STRINGRANGE condition would be raised.

---

**IBM1447I E**      **Literals with an X prefix are valid only in EXEC SQL statements.**

## Explanation

In PL/I statements, hex literals should be specified with an X suffix.

---

**IBM1448I E**      **RULES(NOPUT) violation: nested PUT FILE statement encountered.**

## Explanation

Under RULES(NOPUT), there should be no PUT FILE statements. A PUT FILE statement has been found inside an IF-THEN group, a DO group, or a similar construct. This may represent a conditional statement that is ok to keep in production, but its usage should be checked.

---

**IBM1449I E**      **RULES(NOPUT) violation: unconditional PUT FILE statement encountered.**

## Explanation

Under RULES(NOPUT), there should be no PUT FILE statements. A PUT FILE statement has been found outside an IF-THEN group, a DO group, or a similar construct. This may be problematic to keep in production, and its usage should be checked.

---

**IBM1458I E**      **GOTO is not allowed under RULES(NOGOTO).**

## Explanation

Under RULES(NOGOTO(STRICT)), there should be no GOTO statements in your source program except for those that exit an ON-unit.

---

**IBM1459I E**      **Uninitialized AUTOMATIC variables in a block should not be used in the prologue of that block.**

## Explanation

The AUTOMATIC variables in a block may be used in the declare statements and the executable statements of any contained block, but in the block in which they are declared, they should be used only in the executable statements.

```
dcl x fixed bin(15) automatic;  
dcl y(x) fixed bin(15) automatic;
```

---

**IBM1460I E**      **Under RULES(ANS), nonzero scale factors are not permitted in declarations of FIXED BIN. Declared scale factor will be ignored.**

## Explanation

RULES(IBM) allows scaled FIXED BIN, but RULES(ANS) supports it only for FIXED DECIMAL. RULES(ANS) will ignore the scale factors in the following declares

```
dcl x fixed bin(31,16);  
dcl y entry( fixed bin(31,16) );
```

---

**IBM1461I E**      **Under RULES(ANS), nonzero scale factors are not permitted when the result of the *BUILTIN* name built-in has the attributes FIXED BIN. Specified scale factor will be ignored.**

## Explanation

You must recode such statements to avoid this restriction. The compiler will ignore the scale factors in the following built-ins

```
dcl (x,y) fixed bin(15,0);  
put list( bin(x,31,2) );  
put list( prec(x,31,2) );
```

---

**IBM1462I E**      **Expression in comparison interpreted with DATE attribute.**

## Explanation

In a comparison, if one comparand has the DATE attribute, the other should also. If the non-date is an expression that could have a value that is valid for the date pattern, it will be viewed as if it had the same DATE attribute as the date comparand.

---

**IBM1463I E**      **Operand with DATE attribute is invalid except in compare or assign. DATE attribute will be ignored.**

## Explanation

Comparisons are the only infix operations where operands with the DATE attribute may be used. If they are used in any other operation, the DATE attribute will be ignored. So, in the following code, the addition will be flagged and the DATE attribute ignored.

```
dcl x char(5) date('YYDDD');  
put list( x + 1 );
```

---

**IBM1464I E**      **DATE attribute ignored in comparison with non-date expression.**



## Explanation

In a comparison, if one comparand has the DATE attribute, the other should also. If the non-date is an expression that could not have a value that is not valid for the date pattern, the DATE attribute will be ignored.

---

**IBM1465I E**      **Source in assignment has the DATE attribute, but target *variable* does not. The DATE attribute will be ignored.**

---

## Explanation

If the target in an assignment has the DATE attribute, the source should also. If the target is a pseudovalue, message 1466 is issued instead.

```
decl x char(6);  
x = date();
```

---

**IBM1466I E**      **Source in assignment has the DATE attribute, but target does not. The DATE attribute will be ignored.**

---

## Explanation

If the source in an assignment has the DATE attribute, the target should also.

---

**IBM1467I E**      **Source in INITIAL clause for *variable name* has the DATE attribute but the target does not. The DATE attribute will be ignored.**

---

## Explanation

If an INITIAL expression has the DATE attribute, the target should also.

---

**IBM1468I E**      **Argument number *argument-number* in ENTRY reference *entry name* has the DATE attribute but the corresponding parameter does not. The DATE attribute will be ignored.**

---

## Explanation

The argument and parameter should match, unlike in the example below

```
decl x entry( char(6) );  
call x( date() );
```

---

**IBM1469I E**      **Source in RETURN statement has the DATE attribute, but the corresponding RETURNS option does not. The DATE attribute will be ignored.**

---

## Explanation

The attributes of the RETURNed expression and in the RETURNS option should match, unlike in the example below

```
x: proc returns( char(6) );  
...  
return( date() );
```

---

**IBM1470I E**      **An ID option must be specified for the INCLUDE preprocessor.**

---

## Explanation

No other options are valid for the INCLUDE preprocessor.

---

**IBM1471I E**      **The ID option specified for the INCLUDE preprocessor is invalid.**

---

## Explanation

The INCLUDE preprocessor ID option must have one suboption consisting of a string specifying the INCLUDE directive.

---

**IBM1472I E**      **A closing right parenthesis is missing from the ID option specified for the INCLUDE preprocessor.**

---

## Explanation

The suboption specified for the INCLUDE preprocessor ID option must be closed with a right parenthesis.

---

**IBM1473I E**      **The syntax of the preprocessor INCLUDE directive is incorrect.**

---

## Explanation

A statement that starts with the preprocessor INCLUDE directive specified in that preprocessor's ID option must be followed by a name and, optionally, a semicolon.

---

**IBM1474I E**      **Source in assignment does not have the DATE attribute, but target *variable* does. The DATE attribute will be ignored.**

---

## Explanation

If the target in an assignment has the DATE attribute, the source should also. If the target is a pseudovisible, message 1475 is issued instead.

```
decl x char(6) date('YYMMDD');  
x = '';
```

**IBM1475I E** Target in assignment has the DATE attribute, but source does not. The DATE attribute will be ignored.

## Explanation

If the target in an assignment has the DATE attribute, the source should also.

**IBM1476I E** Source in INITIAL clause for *variable name* does not have the DATE attribute but the target does. The DATE attribute will be ignored.

## Explanation

If a variable has the DATE attribute, then any INITIAL value for it should also.

**IBM1477I E** Argument number *argument-number* in ENTRY reference *entry name* does not have the DATE attribute but the corresponding parameter does. The DATE attribute will be ignored.

## Explanation

The argument and parameter should match, unlike in the example below

```
decl x entry( char(6) date('YYMMDD') );  
call x( '' );
```

**IBM1478I E** Source in RETURN statement does not have the DATE attribute, but the corresponding RETURNS option does. The DATE attribute will be ignored.

## Explanation

The attributes of the RETURNed expression and in the RETURNS option should match, unlike in the example below

```
x: proc returns( char(6) date('YYMMDD') );  
...  
return( '' );
```

**IBM1479I E** Multiple RETURN statements are not allowed under RULES(NOMULTIEXIT).

## Explanation

Under RULES(NOMULTIEXIT), there should be at most one RETURN statement in each PROCEDURE and BEGIN block in your source program.

**IBM1480I E** Multiple closure of groups is not allowed under RULES(NOMULTICLOSE).

## Explanation

Under RULES(NOMULTICLOSE), there should be no multiple closure of groups in your source program.

**IBM1481I E** BYNAME assignment statements are not allowed under RULES(NOBYNAME).

## Explanation

Under RULES(NOBYNAME), there should be no BYNAME assignment statements in your source program.

**IBM1482I E** RULES(NOLAXDCL) violation: the variable *variable name* is declared without any data attributes.

## Explanation

It will be given the default attributes, but this may be because of an error in the declare. For instance, in the following example, parentheses may be missing. Under RULES(LAXDCL), this is a W-level message.

```
decl a, b fixed bin;
```

**IBM1483I E** RULES(NOLAXDCL) violation: the structure member *variable name* is declared without any data attributes. A level number may be incorrect.

## Explanation

It will be given the default attributes, but this may be because of an error in the declare. For instance, in the following example, the level number on c and d should probably be 3. Under RULES(LAXDCL), this is a W-level message.

```
dcl a, b fixed bin;
  1 a,
  2 b,
  2 c,
  2 d;
```

---

**IBM1484I E**      **RULES(NOLAXDCL) violation: an unnamed structure member is declared without any data attributes. A level number may be incorrect.**

## Explanation

It will be given the default attributes, but this may be because of an error in the declare. For instance, in the following example, the level number on c and d should probably be 3. Under RULES(LAXDCL), this is a W-level message.

```
dcl a, b fixed bin;
  1 a,
  2 *,
  2 c,
  2 d;
```

---

**IBM1485I E**      **A WHEN or OTHERWISE clause has been found inside of an open DO group contained in an open SELECT group. An END statement may be missing and will be inserted in an attempt to fix the problem.**

## Explanation

The compiler assumes that an END statement to close the open DO group is missing, but it may be that a SELECT statement to start a nested SELECT is missing. In either case, the code is incorrect and should be corrected.

---

**IBM1486I E**      **Statement contains a mismatching number of ( and ).**

## Explanation

Every ( should have a matching ).

---

**IBM1487I E**      **Statement contains a mismatching number of (: and :).**

## Explanation

Every (: should have a matching :).

---

**IBM1488I E**      **Specification of an alternate DD for SYSIN after the source has been opened will be ignored.**

## Explanation

Do not specify an alternate DD for SYSIN in a \*PROCESS statement.

---

**IBM2400I E**      **Compiler backend issued error messages to STDOUT.**

## Explanation

Look in STDOUT to see the message issued by the compiler backend.

---

**IBM2401I E**      **RULES(NOLAXPUNC) violation: missing *character* assumed before *character*. DECLARE and other nonexecutable statements should not have labels.**

## Explanation

The indicated character is missing and has been inserted by the parser in order to correct your source. Under RULES(LAXPUNC), a message with the same text, but lesser severity would be issued

```
xx: dcl test fixed bin;
```

---

**IBM2402I E**      ***variable name* is declared as **BASED** on the **ADDR** of *variable name*, but *variable name* requires more storage than *variable name*.**

## Explanation

The amount of storage needed for a BASED variable must be no more than provided by its base variable.

```
dcl a char(10);
dcl b char(15) based(addr(a));
```

---

**IBM2403I E**      **PROCESS statements are not permitted under the NOPROCESS option.**

## Explanation

When the NOPROCESS option is in effect, the source should contain no PROCESS statements.

**IBM2404I E**      *variable name is declared as BASED on the ADDR of variable name, but variable name requires more storage than remains in the enclosing level 1 structure variable name after the location of variable name.*

## Explanation

The amount of storage needed for a BASED variable must be no more than provided by its base variable.

```
dcl 1 a, 2 a1 char(10), 2 a2 char(10);  
dcl b char(15) based(addr(a2));
```

**IBM2405I E**      **Even decimal precisions are not allowed under RULES(NOEVENDEC).**

## Explanation

Under RULES(NOEVENDEC), there should be no FIXED DECIMAL data declared with an even precision.

```
dcl a fixed dec(10);
```

**IBM2406I E**      **Precision outside VALUE clause will be ignored.**

## Explanation

In DEFAULT statements, numeric precisions should be specified only inside VALUE clauses.

```
dft range(*) fixed bin(31);
```

**IBM2407I E**      **Length outside VALUE clause will be ignored.**

## Explanation

In DEFAULT statements, lengths of strings should be specified only inside VALUE clauses.

```
dft range(*) bit(8);
```

**IBM2408I E**      **AREA size outside VALUE clause will be ignored.**

## Explanation

In DEFAULT statements, sizes of AREAs should be specified only inside VALUE clauses.

```
dft range(*) area(10000);
```

**IBM2409I E**      **RETURN statement without an expression is invalid inside a nested PROCEDURE that specified the RETURNS attribute.**

## Explanation

All RETURN statements inside functions must specify a value to be returned.

```
a: proc returns( fixed bin );  
    return;
```

**IBM2410I E**      **Function *function name* contains no valid RETURN statement.**

## Explanation

Functions must contain at least one RETURN statement.

**IBM2411I E**      **STRINGOFGRAPHIC( CHARACTER ) option is ignored because argument to STRING built-in function is possibly not contiguous.**

## Explanation

The STRINGOFGRAPHIC( CHARACTER ) option will be ignored if the argument contains any elements that are VARYING or if the argument is a NONCONNECTED slice of an array.

**IBM2412I E**      **PROCEDURE has no RETURNS attribute, but contains a RETURN statement. A RETURNS attribute will be assumed.**

## Explanation

If a procedure contains a RETURN statement, it should have the RETURNS attribute specified on its PROCEDURE statement.

```
a: proc;  
  return( 0 );  
end;
```

---

**IBM2413I E**      **The attribute *attribute* should be specified only on parameters and descriptors.**

## Explanation

Attributes must be consistent.

```
dcl a fixed based connected;
```

---

**IBM2414I E**      **The *option* option conflicts with the *option* option. The *option* option will be used instead.**

## Explanation

The specified options conflict and cannot be used together. The compiler will produce this message for various conflicts. For example, on ASCII systems, the compiler will produce this message if you specify the GRAPHIC and EBCDIC options. Conversely, on EBCDIC systems, the compiler will produce this message if you specify the GRAPHIC and ASCII options.

---

**IBM2415I E**      **Without APAR *number*, compiler would generate incorrect code for this statement.**

## Explanation

The indicated APAR will fix a compiler problem with this statement.

---

**IBM2416I E**      **The SEPARATE suboption of TEST is not supported when the LINEDIR option is in effect.**

## Explanation

When the LINEDIR option is in effect, only the NOSEPARATE suboption of the TEST option is supported.

---

**IBM2417I E**      **In FETCHABLE code compiled with NORENT NOWRITABLE(PRV), it is invalid to ALLOCATE or FREE a**

**CONTROLLED variable unless it is a PARAMETER.**

## Explanation

In FETCHABLE code, all CONTROLLED variables should be parameters.

---

**IBM2418I E**      **Variable *variable* is unreferenced.**

## Explanation

The compiler will issue this message for any level-1 variable that is not referenced in a particular storage class named in the RULES option: for example, AUTOMATIC variables under RULES(NOUNREF), BASED variables under RULES(NOUNREFBASED), etc

---

**IBM2419I E**      ***option* is invalid and ignored unless the ARCH option is *level* or greater.**

## Explanation

The RTCHECK option will be ignored unless the ARCH option is 8 or greater since the necessary instructions are available only with ARCH(8) or later.

---

**IBM2420I E**      **DFP is invalid and ignored unless the ARCH option is 7 or greater.**

## Explanation

The FLOAT(DFP) option will be ignored unless the ARCH option is 7 or greater since the necessary instructions are available only with ARCH(7) or later.

---

**IBM2421I E**      **A file should not be closed in its ENDFILE block.**

## Explanation

In an ENDFILE block for a file, it is invalid to close that file in the ENDFILE block.

---

**IBM2422I E**      **Under the DFP option, the HEXADEC attribute is not supported for FLOAT DEC.**

## Explanation

Under the FLOAT(DFP) option, all FLOAT DECIMAL will be treated as DFP and may not be declared as HEXADEC. The attribute is still valid for FLOAT BIN.

---

**IBM2423I E**      **Under the DFP option, the IEEE attribute is not supported for FLOAT DEC.**

## Explanation

Under the FLOAT(DFP) option, all FLOAT DECIMAL will be treated as DFP and may not be declared as IEEE. The attribute is still valid for FLOAT BIN.

---

**IBM2424I E      Scale factors are not allowed in FLOAT declarations.**

---

## Explanation

Scale factors are valid only in declares of FIXED BIN or FIXED DEC. The first declaration below is invalid and should be changed to one of the subsequent declarations.

```
dc1 a1 float dec(15,2);  
  
dc1 a2 fixed dec(15,2);  
dc1 a3 float dec(15);
```

---

**IBM2425I E      Statement with ELSE IF should be rewritten using SELECT.**

---

## Explanation

Under RULES(NOELSEIF), the compiler will issue this message for statement where an ELSE is immediately followed by an IF statement.

---

**IBM2426I E      Maximum nesting of DO statements has been exceeded.**

---

## Explanation

The nesting of DO statements has exceeded the value specified in the DO suboption of the MAXNEST compiler option.

---

**IBM2427I E      Maximum nesting of IF statements has been exceeded.**

---

## Explanation

The nesting of IF statements has exceeded the value specified in the IF suboption of the MAXNEST compiler option.

---

**IBM2428I E      Maximum nesting of PROC and BEGIN statements has been exceeded.**

---

## Explanation

The nesting of PROC and BEGIN statements has exceeded the value specified in the BLOCK suboption of the MAXNEST compiler option.

---

**IBM2429I E      CMPAT(V3) requires that 8-byte integers be allowed. The second value in the FIXEDBIN suboption of the LIMITS option will be set to 63.**

---

## Explanation

The use of the CMPAT(V3) option with LIMITS(FIXEDBIN(31,31)) is not supported. Since CMPAT(V3) will cause various built-in functions (such as HBOUND) to return a FIXED BIN(63) result, at least the second value in the FIXEDBIN suboption of LIMITS must be 63 (i.e. LIMITS(FIXEDBIN(31,63)) or LIMITS(FIXEDBIN(63,63)) must be in effect).

---

**IBM2430I E      The LINESIZE value specified in the OPEN of file *file name* is not compatible with the RECSIZE specified in its declare.**

---

## Explanation

If the file has F format and is not a PRINT file, then the LINESIZE must be no greater than the RECSIZE. If the file has F format and is a PRINT file, then the LINESIZE must be less than the RECSIZE. If the file has V format and is not a PRINT file, then the LINESIZE must be no greater than the RECSIZE-4. If the file has V format and is a PRINT file, then the LINESIZE must be less than the RECSIZE-4.

---

**IBM2431I E      The *option* option conflicts with the GOFF option. NOGOFF will be used instead.**

---

## Explanation

The specified option is not permitted with the GOFF option, and the GOFF option will be turned off so that the compile may proceed. This applies, for example, to the NOWRITABLE(PRV) and COMMON options.

---

**IBM2432I E      The attribute *character* is invalid with parameters and is ignored.**

---

## Explanation

The INITIAL attribute, for example, is invalid with parameters (since their storage will have been allocated elsewhere).

```
dc1 a fixed bin parameter initial( 0 );
```

---

**IBM2433I E      The attribute *attribute* is invalid with DEFINED and is ignored.**

---

## Explanation

The INITIAL attribute, for example, is invalid with DEFINED variables (since their storage will have been allocated elsewhere).

```
dcl b char(1) initial( ' ' ) defined(a);
```

---

**IBM2434I E**      **RULES(NOLAXENTRY) violation:**  
***name* does not specify a**  
**parameter list.**

## Explanation

Under RULES(NOLAXENTRY), all ENTRY declares must be prototyped. If the ENTRY should have no parameters, it should be declared as ENTRY() rather than as simply ENTRY.

---

**IBM2435I E**      **RULES(NOLAXSCALE) violation:**  
**scale factor is less than 0.**

## Explanation

Under RULES(NOLAXSCALE), scale factors must be nonnegative, and the compiler flags the statement below.

```
dcl a fixed dec(15,-2);
```

---

**IBM2436I E**      **RULES(NOLAXSCALE) violation:**  
**scale factor is larger than the**  
**precision.**

## Explanation

Under RULES(NOLAXSCALE), scale factors must be no larger than the precision,

```
dcl a fixed dec(15,17);
```

---

**IBM2437I E**      **SQL preprocessor invoked more**  
**than once without INONLY.**

## Explanation

If the SQL preprocessor is invoked more than once without INONLY as its suboption, then the DBRM library member created for the compile will be empty. It is best to invoke the SQL preprocessor either only once or once with INONLY as its only suboption and then only once more.

---

**IBM2438I E**      **STOP and EXIT statements are not**  
**allowed.**

## Explanation

Under RULES(NOSTOP), there should be no STOP and no EXIT statements in your source program.

---

**IBM2439I E**      **RULES(NOPROCENDONLY)**  
**violation: END statement for a**  
**PROCEDURE must include the**  
**name of the PROCEDURE.**

## Explanation

Under RULES(NOPROCENDONLY), the END statement for a PROCEDURE must not consist of simply the END keyword and a semicolon. It must also include the name of the PROCEDURE it is closing.

---

**IBM2440I E**      **RULES(NOLAXQUAL) violation:**  
**structure element *identifier* is not**  
**qualified with the name of its**  
**containing level 1 structure.**

## Explanation

Under the option RULES(NOLAXQUAL), all structure elements should be qualified with the name of their outermost parent.

---

**IBM2441I E**      **RULES(NOGOTO) violation: GOTO**  
**exits the current block.**

## Explanation

Under RULES(NOGOTO(LOOSE)) and RULES(NOGOTO(LOOSEFORWARD)), there should be no GOTO statements in your source program except for those that exit an ON-unit and those that goto a label in the current block.

---

**IBM2442I E**      **RULES(NOPADDING) violation:**  
**structure *identifier* contains**  
**padding.**

## Explanation

Under RULES(NOPADDING), structures should contain no padding.

---

**IBM2443I E**      **RULES(NOGLOBALDO) violation:**  
**control variable in DO statement**  
**belongs to a parent block.**

## Explanation

Under RULES(NOGLOBALDO), in a DO loop of the form DO x = .., x must be declared in the same block as the DO loop.

---

**IBM2444I E**      **The built-in function *builtin* has been deprecated.**

---

### Explanation

The named built-in function was specified in the BUILTIN suboption of the DEPRECATE option, and so any explicit or contextual declaration of it is flagged.

---

**IBM2445I E**      **The INCLUDE file *filename* has been deprecated.**

---

### Explanation

The named INCLUDE file was specified in the INCLUDE suboption of the DEPRECATE option, and so any attempt to include it is flagged.

---

**IBM2446I E**      **The ENTRY named *variable* has been deprecated.**

---

### Explanation

The named ENTRY was specified in the ENTRY suboption of the DEPRECATE option, and so any explicit or contextual declaration of it is flagged.

---

**IBM2447I E**      **The VARIABLE named *variable* has been deprecated.**

---

### Explanation

The named VARIABLE was specified in the VARIABLE suboption of the DEPRECATE option, and so any explicit or contextual declaration of it is flagged.

---

**IBM2448I E**      **CICS preprocessor invoked more than once.**

---

### Explanation

If the CICS preprocessor were invoked more than once, then the second invocation would cause duplicate declarations to be inserted in the outermost procedure. The CICS preprocessor must be invoked only once. The compiler ignores any excess invocations.

---

**IBM2449I E**      **RULES(NOSELFASSIGN) violation: source and target in assignment are identical.**

---

### Explanation

Under RULES(NOSELFASSIGN), the source and target in an assignment must be different.

---

**IBM2450I E**      **First argument to *BUILTIN* name built-in function should have**

---

**length greater than or equal to *length*.**

### Explanation

The argument to the named built-in function is too short. For example, the argument to the Y4DATE built-in function should have the form YYMMDD with possibly some trailing blanks, and hence the length of that argument should be greater than or equal to 6.

---

**IBM2451I E**      **RULES(NOLAXIF) violation: source in the assignment is a Boolean, but the target is not BIT(1).**

---

### Explanation

Under RULES(NOLAXIF), if the target in an assignment is not BIT(1), the assignment is flagged if the source is a Boolean. So, for example, the first assignment below is correct, but RULES(NOLAXIF) flags the second assignment since the third assignment might be what was intended.

```
x = (y = z);  
x = y = z;  
x, y = z;
```

---

**IBM2452I E**      **RULES(NOLAXSCALE) violation: scale factor is less than 0.**

---

### Explanation

Under RULES(NOLAXSCALE), scale factors must be nonnegative. The compiler flags the first statement below, but not the second one (which is a possible replacement for the first).

```
b = round( c, -1 );  
b = 10 * round( c / 10, 0 );
```

---

**IBM2453I E**      **RULES(NOLAXNESTED) violation: code should come in one group of statements with no intervening procedures or BEGIN blocks.**

---

### Explanation

Under RULES(NOLAXNESTED), all executable code in a procedure must come in one group of statements with all nested subprocedures and nested BEGIN blocks surrounding that group of statements.



---

**IBM2454I E**      **The *builtin* statement has been deprecated.**

---

### Explanation

The named statement was specified in the STMT suboption of the DEPRECATE option, and so any use of that statement is flagged.

---

**IBM2455I E**      **The *builtin* keyword does not conform to the CASERULES option.**

---

### Explanation

The named keyword does not follow the case rules specified in the KEYWORD suboption of the CASERULES option.

---

**IBM2456I E**      **RULES(NORECURSIVE) violation: RECURSIVE PROCEDURES are not allowed under RULES(NORECURSIVE).**

---

### Explanation

Under RULES(NORECURSIVE), the RECURSIVE attribute should not be used and procedures should not call themselves.

---

**IBM2457I E**      **RULES(NORECURSIVE) conflicts with DFT(RECURSIVE). The compiler will apply RULES(RECURSIVE) instead.**

---

### Explanation

If you want to use DFT(RECURSIVE), then RULES(RECURSIVE) should also be used. If RULES(NORECURSIVE) is more important, then DFT(NONRECURSIVE) should be used.

---

**IBM2458I E**      **The CONTROLLED attribute is not allowed under RULES(NOCONTROLLED).**

---

### Explanation

Under RULES(NOCONTROLLED), the CONTROLLED attribute must not be used.

---

**IBM2459I E**      **The characters specified in the *option* option must all have hexadecimal values less than 80.**

---

### Explanation

Under the ENCODING(UTF8) option, the characters specified in the OR, NOT, QUOTE, and BLANK compiler options must all be one-byte UTF-8 characters.

---

**IBM2460I E**      **The *option* option conflicts with the ENCODING(UTF8) option. ENCODING(ASCII) will be assumed.**

---

### Explanation

The specified options conflict and cannot be used together. The ENCODING(UTF8) option cannot be used with the SOSI, DBCS or GRAPHIC options.

---

**IBM2461I E**      **The MARGINI option must specify a valid UTF-8 string consisting of one UTF-8 character.**

---

### Explanation

Under the ENCODING(UTF8) option, the MARGINI option must be a one-character UTF-8 string. If not, a blank will be used instead.

---

**IBM2462I E**      **The attribute *character* conflicts with the attribute *character* and is ignored.**

---

### Explanation

Attributes must be consistent.

```
dcl a parameter static;
```

---

**IBM2463I E**      **LINKAGE(SYSTEM) is not supported for PL/I PROCEDURES, and LINKAGE(OPTLINK) will be assumed instead.**

---

### Explanation

Under 64-bit, only the OPTLINK linkage is supported for PL/I procedures

---

**IBM2464I E**      **RULES(NOLAXSTMT) violation: line contains more than one statement.**

---

### Explanation

Under RULES(NOLAXSTMT), there should be only one statement per line.

---

**IBM2465I E**      **Assignment of a null string to a pointer is invalid.**

---

### Explanation

Under DEFAULT(NULLSTRPTR(STRICT)), such assignments are invalid.

---

<b>IBM2466I E</b>	<b>Comparison of a null string to a pointer is invalid.</b>
-------------------	---

---

### Explanation

Under DEFAULT(NULLSTRPTR(STRICT)), such comparisons are invalid.

---

<b>IBM2467I E</b>	<b>RULES(NOYY) conflicts with use of a date pattern with a 2-digit year.</b>
-------------------	--

---

### Explanation

Under RULES(NOYY), the use of date patterns with a 2-digit year is invalid.

---

<b>IBM2468I E</b>	<b>RULES(NOYY) conflicts with use of a date pattern with a ZY.</b>
-------------------	--

---

### Explanation

Under RULES(NOYY), the use of date patterns with a ZY is invalid.

---

<b>IBM2469I E</b>	<b>RULES(NOYY) conflicts with use of the DATE attribute without a pattern.</b>
-------------------	--

---

### Explanation

Under RULES(NOYY), the use of the DATE attribute without a pattern is invalid since it implies a pattern of YYMMDD.

---

<b>IBM2470I E</b>	<b>RULES(NOYY) conflicts with use of the <i>BUILTIN</i> name built-in function.</b>
-------------------	---

---

### Explanation

Under RULES(NOYY), the use of any of the Y4 date built-in functions is invalid.

---

<b>IBM2471I E</b>	<b>RULES(NOYY) conflicts with use of the <i>BUILTIN</i> name built-in function with a window argument.</b>
-------------------	--

---

### Explanation

Under RULES(NOYY), the use of any date built-in function with a window argument is invalid.

---

<b>IBM2472I E</b>	<b>RULES(NOYY) conflicts with use of the DATE built-in function.</b>
-------------------	--

---

### Explanation

Under RULES(NOYY), the use of the DATE built-in functions is invalid since it will return a 2-digit year.

---

<b>IBM2473I E</b>	<b>RULES(NOLAXINTERFACE) violation: <i>proc name</i> has not been explicitly declared.</b>
-------------------	--

---

### Explanation

Under RULES(NOLAXINTERFACE), if there is a PACKAGE statement, then every external PROCEDURE other than MAIN must be declared.

---

<b>IBM2474I E</b>	<b>RULES(NOGOTO) violation: GOTO jumps to a previous line in the current block.</b>
-------------------	---

---

### Explanation

Under RULES(NOGOTO(LOOSEFORWARD)), there should be no GOTO statements in your source program except for those that exit an ON-unit and those that goto a label on a later line in the current block.

---

<b>IBM2475I E</b>	<b>RULES(NOMULTISEMI) violation: line contains too many semicolons.</b>
-------------------	---

---

### Explanation

Under RULES(NOMULTISEMI), there should be only one semicolon on a line.

---

<b>IBM2476I E</b>	<b>Item in OPTIONS list is invalid for ON-unit BEGIN blocks. <i>option-name</i> is ignored.</b>
-------------------	---

---

### Explanation

The indicated element of the options list is invalid for ON-unit BEGIN blocks (although it may be valid for other BEGIN blocks).

```
on zdiv begin options( inline );
```

---

<b>IBM2478I E</b>	<b>Under RULES(NOCOMPLEX), the COMPLEX attribute, the COMPLEX built-in function, and constants ending with the I suffix are not allowed.</b>
-------------------	--

---

### Explanation

Under RULES(NOCOMPLEX), the COMPLEX attributes, the COMPLEX built-in function, and "imaginary" constants (such as 1i) must not be used.

---

<b>IBM2479I E</b>	<b>RULES(NOLAXPACKAGE) violation: compilation unit does not contain a PACKAGE statement.</b>
-------------------	--

---

## Explanation

Under RULES(NOLAXPACKAGE), every compilation unit must contain a PACKAGE statement.

---

**IBM2480I E**      **RULES(NOLAXEXPORTS) violation: package contains PROCEDURES but no EXPORTS clause naming specifically which PROCEDURES are exported.**

---

## Explanation

Under RULES(NOLAXEXPORTS), every PACKAGE that contains procedures must have an EXPORTS clause that names the routines it exports.

---

**IBM2481I E**      **RULES(NOLAXSCALE) violation: scale factor is greater than 0.**

---

## Explanation

Under RULES(NOLAXSCALE(STRICT)), scale factors for FIXED BIN must be zero. The compiler uses other messages to flag negative scale factors and scale factors greater than the precision, but it uses this message to flag all other positive scale factors such as in the statement below.

```
decl a fixed bin(15,2);
```

---

**IBM2482I E**      **RULES(NOLAXPARMS) violation: Parameter variable is declared without INONLY, OUTONLY, or INOUT.**

---

## Explanation

If the RULES(NOLAXPARMS) option is in effect, The compiler will issue this message for any level-1 parameter declared without specifying if it is an input, an output or both.

---

**IBM2483I E**      **RULES(NOPADDING) violation: the structure identifier is count-byte aligned, but does not have a multiple of count bytes before its first element with that alignment.**

---

## Explanation

Under RULES(NOPADDING(STRICT)), structures should contain no hang.

---

**IBM2484I E**      **RULES(NOPADDING) violation: the structure identifier does not have a multiple of 8 bits before its**

---

**first element with byte (or greater) alignment.**

## Explanation

Under RULES(NOPADDING(STRICT)), structures should contain no hang.

---

**IBM2485I E**      **RULES(NOPADDING) violation: the size of the structure identifier is not a multiple of its alignment.**

---

## Explanation

Under RULES(NOPADDING(STRICT)), structures should contain no padding.

---

**IBM2486I E**      **RULES(NOPADDING) violation: the structure identifier does not have a multiple of 8 bits after its last element with byte (or greater) alignment.**

---

## Explanation

Under RULES(NOPADDING(STRICT)), structures should contain no hang.

---

**IBM2487I E**      **RULES(NOPADDING) violation: the structure identifier does not contain a multiple of 8 bits.**

---

## Explanation

Under RULES(NOPADDING(STRICT)), structures should contain no hang.

---

**IBM2489I E**      **RULES(NOLAXSCALE) violation: FIXED DEC(source-precision,source-scale) operand will be converted to FIXED BIN(target-precision,target-scale). This introduces a non-zero scale factor into an integer operation and will produce a result with the attributes FIXED BIN(result-precision,result-scale).**

---

## Explanation

Under RULES(IBM), when an arithmetic operation has an operand that is FIXED BIN and an operand that is FIXED DEC with a non-zero scale factor, then the FIXED DEC operand will be converted to FIXED BIN. Under RULES(NOLAXSCALE(STRICT)), this is flagged as an error.

---

**IBM2490I E**      **Source in assignment does not fit in the the VALUERANGE of the target.**

---

## Explanation

When assigning to a target with the VALUERANGE attribute, the source must have a value in that range.

---

**IBM2491I E**      **Source in assignment does not occur in the the VALUelist of the target.**

---

## Explanation

When assigning to a target with the VALUelist attribute, the source must have a value in that list.

---

**IBM2492I E**      **RULES(NOGLOBAL) violation: Variable *variable* is used inside a nested PROCEDURE.**

---

## Explanation

If the RULES(NOGLOBAL) option is in effect, the compiler will issue this message for variables that are used in a procedure that is nested inside the procedure in which they were declared.

---

**IBM2493I E**      **RULES(NOLAXOPTIONAL) violation: Variable *variable* is used as an argument to the *BUILTIN* name function, but does not have the OPTIONAL attribute.**

---

## Explanation

If the RULES(NOLAXOPTIONAL) option is in effect, the compiler will enforce the rule that arguments to the PRESENT or OMITTED built-in functions should have the OPTIONAL attribute.

---

**IBM2494I E**      **RULES(NOLAXQUAL) violation: Structure element *identifier* is not fully qualified.**

---

## Explanation

Under the option RULES(NOLAXQUAL(FULL)), all structure elements should be qualified with the names of all their parents.

---

**IBM2495I E**      **Third argument in *BUILTIN* name reference is too small. It will be replaced by the value of the second argument minus 1.**

---

## Explanation

Given SUBTO(*x*,*i*,*j*), then *j* >= (*i*-1) must be true. Otherwise the STRINGRANGE condition would be raised.

---

**IBM2496I E**      **The JSON( ENCODING( *option* ) ) option conflicts with the**

---

**CODEPAGE( *option* ) option. The JSON( ENCODING( *option* ) ) option will be used instead.**

## Explanation

The specified options conflict and cannot be used together. The codepage values in this pair must specify the codepages 37 and 1047.

---

**IBM2499I E**      **MAXRUNONIF limit exceeded: IF statement tests an expression that consists of *count* comparisons of the same reference against a series of constant values. The expression could be replaced by one INLIST reference.**

---

## Explanation

It would be better to replace an IF expression of the form ( *a* = *y1* | *a* = *y2* | ... | *a* = *yn* ) with the expression INLIST( *a*, *y1*, *y2*, ..., *yn* ). This would be less likely to contain errors and more likely to be optimized.

---

**IBM2500I E**      **MAXRUNONIF limit exceeded: IF statement tests an expression that consists of *count* comparisons of the same reference against a series of constant values. The statement could be replaced by a SELECT statement containing one large WHEN statement.**

---

## Explanation

It would be better to replace an IF expression of the form ( *a* = *y1* | *a* = *y2* | ... | *a* = *yn* ) with the expression SELECT( *a* ); WHEN( *y1*, *y2*, ..., *yn* ) ... This would be less likely to contain errors and more likely to be optimized.

---

**IBM2501I E**      **Alignment value is invalid and will be ignored.**

---

## Explanation

The only supported ALIGNED values are 1, 2, 4, and 8.

```
decl a char(256) aligned(32);
```

---

**IBM2502I E**      **The compiler option CMPAT specifies *Voption-value* but the CMPAT suboption in the OPTIONS attribute specifies *Vsuboption-value*. These values should match.**

---

## Explanation

If the CMPAT compiler option specifies, for example, V2, then the CMPAT suboption in the OPTIONS attribute on the PROCEDURE must also specify V2.

---

**IBM2503I E**      **RULES(NOLAXENTRY) violation:**  
*name* has a parameter with the  
ENTRY attribute but which does  
not specify a parameter list.

## Explanation

Under RULES(NOLAXENTRY), all ENTRY declares must be prototyped. If the ENTRY should have no parameters, it should be declared as ENTRY() rather than as simply ENTRY.

---

**IBM2504I E**      **PROCINC syntax is invalid.**

## Explanation

%PROCINC statements must have a file name and a semicolon on the same line as the %PROCINC keyword.

---

**IBM2505I E**      **PROCINC files must include**  
**only PROCESS and PROCINC**  
**statements.**

## Explanation

%PROCINC files must not contain any blank lines or any code.

---

**IBM2506I E**      **Source in conversion from ASCII**  
**to EBCDIC has a byte with the**  
**invalid hex value** *hex value*.

## Explanation

The source in a conversion from ASCII to EBCDIC must have a hex value between '20'x and '7e'x inclusive.

---

**IBM2507I E**      **Source in conversion from EBCDIC**  
**codepage** *codepage* **to ASCII has a**  
**byte with the hex value** *hex value*  
**which produces a byte with the**  
**invalid hex value** *hex value*.

## Explanation

The source in a conversion from EBCDIC to ASCII must produce hex values between '20'x and '7e'x inclusive.

---

**IBM2508I E**      **Use of seconds in date**  
**calculations is dangerous.**  
**It would be better to**  
**use the MICROSECS function**  
**corresponding to the** *name* **built-in**  
**function. This built-in function is**  
**deprecated and support for it will**  
**be withdrawn in the future.**

## Explanation

The SECS, SECSTODATE, etc built-in functions use a floating-point value as a number of Lilian seconds, and that can produce inexact conversions. It would be better to use MICROSECS, MICROSECSTODATE, etc since they use an exact 8-byte integer value to hold the number of Lilian microseconds.

---

**IBM2509I E**      **The rounding digit** *scale-factor*  
**specified in the** *BUILTIN name*  
**built-in function is too large: it**  
**is greater than the number of**  
**fractional digits in its** *attributes*  
**argument.**

## Explanation

In ROUND(x,n), if x is FIXED(p,q), then n must be less than or equal to q. For example, if x is FIXED BIN(p,0), then ROUND(x,1) would request a rounding of a non-existent fractional part.

---

**IBM2510I E**      **The argument to** *BUILTIN name*  
**has the attributes** *FIXED BIN*, **but**  
**with a scale factor of zero. This**  
**probably reflects an error in the**  
**code.**

## Explanation

CEIL, FLOOR, and TRUNC of an expression x that has the attributes FIXED BIN is somewhat meaningless except when either x has a positive scale factor or x is a quotient (y/z) where y is unscaled FIXED BIN and z is unscaled FIXED.



## Chapter 4. Compiler Severe Messages (1500-2399)

**IBM1500I S**      **Argument number *argument-number* in ENTRY reference *ENTRY name* has type *source type*, which is invalid for a parameter with type *target type*.**

### Explanation

An argument must have a type that can be converted to the corresponding parameter's type.

**IBM1501I S**      **Argument number *argument-number* in ENTRY reference *ENTRY name* has a different strong type than the corresponding parameter.**

### Explanation

If a parameter is strongly typed, any argument passed to it must have the same type.

**IBM1502I S**      **Argument number *argument-number* in ENTRY reference *ENTRY name* has type *source type*, which is invalid for a parameter with type *target type*. If the ENTRY should be invoked, an argument list must be provided.**

### Explanation

An argument must have a type that can be converted to the corresponding parameter's type.

**IBM1503I S**      **Argument number *argument-number* in ENTRY reference *ENTRY name* has type *source type*, which is invalid for a parameter with type LIMITED ENTRY.**

### Explanation

Only an EXTERNAL ENTRY CONSTANT, an ENTRY CONSTANT representing a non-nested PROCEDURE, or an ENTRY VARIABLE with the LIMITED attribute can be passed to a LIMITED ENTRY parameter.

**IBM1504I S**      **Argument number *argument-number* in ENTRY reference *ENTRY name* has type POINTER, which is invalid for an OFFSET parameter without an AREA qualifier.**

### Explanation

POINTER expressions can be converted to OFFSET only if the OFFSET is declared with an AREA qualifier.

**IBM1505I S**      **Argument number *argument-number* in ENTRY reference *ENTRY name* has type POINTER, which is invalid for a POINTER parameter since the OFFSET argument is not an OFFSET variable declared with an AREA qualifier.**

### Explanation

OFFSET variables can be converted to POINTER only if the OFFSET is declared with an AREA qualifier.

**IBM1506I S**      **Argument number *argument-number* in ENTRY reference *ENTRY name* has a different ORDINAL type than the corresponding parameter.**

### Explanation

ORDINALs cannot be passed to other ORDINALs having different ORDINAL types.

**IBM1507I S**      **Arrays of label constants may not be passed as arguments.**

### Explanation

The array can be assigned to an array of LABEL variables, and that array can be passed.

```
1x(1): ... ;  
1x(2): ... ;  
call x( 1x );
```

**IBM1508I S**      **Too few arguments have been specified for the ENTRY *ENTRY name*.**

### Explanation

The number of arguments must match the number of parameters in the ENTRY declaration.

**IBM1509I S**      **Argument to *variable name* pseudovisible must be ASSIGNABLE.**

## Explanation

The target in an assignment through a pseudovisible must not have the NONASSIGNABLE attribute.

```
dcl a static nonasgn char(7)
init('example');

unspec(a) = 'b';
```

**IBM1510I S** First argument to *variable name* pseudovisible must be ASSIGNABLE.

## Explanation

The target in an assignment through a pseudovisible must not have the NONASSIGNABLE attribute.

```
dcl a static nonasgn char(7)
init('example');

substr(a,1,2) = 'tr';
```

**IBM1511I S** Argument number *argument-number* in ENTRY reference *ENTRY name* is an aggregate, but the parameter description specifies a scalar.

## Explanation

Scalars cannot be converted to aggregates.

```
dcl a entry( fixed bin ), b(10) fixed bin;

call a( b );
```

**IBM1512I S** Argument number *argument-number* in ENTRY reference *ENTRY name* is a scalar, but the parameter description specifies an aggregate to which it cannot be passed.

## Explanation

Dummy aggregate arguments are not supported except when passing a non-AREA scalar to a non-CONTROLLED array of scalars, and the array must have no bounds specified as \*. The scalar can be assigned to an aggregate, and that aggregate can be passed.

```
dcl a entry( 1, 2 fixed bin, 2 fixed bin );
```

```
call a( 0 );
```

**IBM1513I S** Argument number *argument-number* in ENTRY reference *ENTRY name* is an aggregate that does not exactly match the corresponding parameter description.

## Explanation

Dummy aggregate arguments are not supported. If an entry description describes an aggregate parameter, then any argument passed must match that parameter's description.

**IBM1514I S** Argument number *argument-number* in ENTRY reference *ENTRY name* is an aggregate with more members than its corresponding parameter description.

## Explanation

Dummy aggregate arguments are not supported. If an entry description describes an aggregate parameter, then any argument passed must match that parameter's description.

**IBM1515I S** Argument number *argument-number* in ENTRY reference *ENTRY name* is an aggregate with fewer members than its corresponding parameter description.

## Explanation

Dummy aggregate arguments are not supported. If an entry description describes an aggregate parameter, then any argument passed must match that parameter's description.

**IBM1516I S** The number of dimensions in the subelements of argument number *argument-number* in ENTRY reference *ENTRY name* and in its corresponding parameter description do not match.

## Explanation

Dummy aggregate arguments are not supported. If an entry description describes an aggregate parameter, then any argument passed must match that parameter's description.

**IBM1517I S** The upper and lower bounds in the subelements of argument number *argument-number* in



**ENTRY reference *ENTRY name* and in its corresponding parameter description do not match.**

### Explanation

Dummy aggregate arguments are not supported. If an entry description describes an aggregate parameter, then any argument passed must match that parameter's description.

---

**IBM1518I S      The number of dimensions for argument number *argument-number* in ENTRY reference *ENTRY name* and in its corresponding parameter description do not match.**

### Explanation

Array arguments and parameters must have the same number of dimensions.

```
dcl a entry( (*,*) fixed bin ), b (10)
fixed bin;

call a( b );
```

---

**IBM1519I S      The upper and lower bounds for argument number *argument-number* in ENTRY reference *ENTRY name* and in its corresponding parameter description do not match.**

### Explanation

Array arguments and parameters must have the same lower and upper bounds.

```
dcl a entry( (0:10) fixed bin ), b (10)
fixed bin;

call a( b );
```

---

**IBM1520I S      Charset 48 is not supported.**

### Explanation

Charset 48 is no longer supported. The source code must be converted to charset 60.

---

**IBM1521I S      Not enough virtual memory is available to continue the compilation.**

### Explanation

The compilation requires more virtual memory than is available. It may help to specify one or more of the following compiler options: NOTEST, NOXREF, NOATTRIBUTES, and NOAGGREGATE.

---

**IBM1522I S      *variable* cannot be SET unless an IN clause is specified.**

### Explanation

If an offset variable is declared without an AREA reference, it cannot be set in an ALLOCATE or LOCATE statement unless an IN clause names an AREA reference.

---

**IBM1523I S      Argument to *BUILTIN name* built-in function must be an AREA reference.**

### Explanation

The built-in function AVAILABLEAREA is defined only for AREAs.

---

**IBM1524I S      *BUILTIN name*(*x*) is undefined if ABS(*x*) > 1.**

### Explanation

An expression contains the built-in function ASIN or ACOS applied to a restricted expression that evaluated to a number outside the domain of that function.

---

**IBM1525I S      ATANH(*x*) is undefined if *x* is REAL and ABS(*x*) >= 1.**

### Explanation

An expression contains the built-in function ATANH applied to a restricted expression that evaluated to a number outside the domain of that function.

---

**IBM1526I S      Argument to *BUILTIN name* must have derived mode REAL.**

### Explanation

An expression contains the named built-in function with an argument having mode COMPLEX.

---

**IBM1527I S      First argument to *BUILTIN name* built-in function must have locator type.**

### Explanation

An expression contains the named built-in function with its first argument having neither type POINTER nor OFFSET.

---

<b>IBM1528I S</b>	<b>First argument to <i>BUILTIN</i> name built-in function must have derived mode REAL.</b>
-------------------	---

---

### Explanation

An expression contains the named built-in function with its first argument having mode COMPLEX. This message applies, for example, to the ATAN and ATAND built-in functions when two arguments are given.

---

<b>IBM1530I S</b>	<b>Second argument to <i>BUILTIN</i> name built-in function must have derived mode REAL.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function, with its second argument having mode COMPLEX. This message applies, for example, to the ATAN and ATAND built-in functions when two arguments are given.

---

<b>IBM1531I S</b>	<b><i>BUILTIN</i> name argument has invalid type.</b>
-------------------	---

---

### Explanation

An expression contains the reference BINARYVALUE(x) where x has a type other than POINTER, OFFSET or ORDINAL.

---

<b>IBM1532I S</b>	<b>E35 sort exit routines must use a 32-bit linkage.</b>
-------------------	--

---

### Explanation

Any other linkage is invalid.

---

<b>IBM1533I S</b>	<b><i>BUILTIN</i> name argument must have computational type.</b>
-------------------	---

---

### Explanation

An expression contains the named built-in function with an argument that has neither string nor numeric type.

---

<b>IBM1534I S</b>	<b><i>BUILTIN</i> name result would be too long.</b>
-------------------	--

---

### Explanation

The result of the REPEAT or COPY built-in function must not be longer than the maximum allowed for the base string type.

---

<b>IBM1535I S</b>	<b><i>BUILTIN</i> name argument must have type REAL FLOAT.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function with an argument having type other than REAL FLOAT. This message applies, for instance, to the floating-point inquiry built-in functions such as HUGE and RADIX, and to the floating-point manipulation built-in functions such as EXPONENT and SUCC.

---

<b>IBM1536I S</b>	<b><i>BUILTIN</i> name argument must be a reference.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function with an argument that is not a reference.

---

<b>IBM1537I S</b>	<b><i>BUILTIN</i> name argument must be an array expression.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function with an argument that is not an array expression. This message applies, for example, to the built-in functions ALL, ANY, SUM and PROD.

---

<b>IBM1538I S</b>	<b><i>BUILTIN</i> name argument must be a FILE reference.</b>
-------------------	---

---

### Explanation

An expression contains the named built-in function with an argument that is not a FILE. This message applies, for example, to the I/O built-in functions such as LINENO and PAGENO.

---

<b>IBM1539I S</b>	<b>* is invalid as a built-in function argument.</b>
-------------------	--

---

### Explanation

A value must be specified as an argument to a BUILTIN function unless the argument is optional.

```
dcl a float;  
a = sqrt(*);
```

---

<b>IBM1540I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN</i> name built-in function must have derived mode REAL.</b>
-------------------	---

---

### Explanation

An expression contains the named built-in function with the specified argument having mode COMPLEX.

This message applies to the MAX and MIN built-in functions.

---

<b>IBM1541I S</b>	<b>Argument number <i>argument</i> number to <i>BUILTIN</i> name built-in function must have computational type.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function with the specified argument having noncomputational type. This message applies to the MAX and MIN built-in functions.

---

<b>IBM1542I S</b>	<b>First argument to <i>BUILTIN</i> name built-in function must have computational type.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function with a first argument that has neither string nor numeric type.

---

<b>IBM1543I S</b>	<b>Argument to <i>BUILTIN</i> name built-in function must have type CHARACTER(1) NONVARYING.</b>
-------------------	--

---

### Explanation

This applies to the RANK built-in function.

---

<b>IBM1544I S</b>	<b>The date-time string <i>string</i> is not valid for the pattern <i>pattern</i> either because it is not a valid date or because the format of the pattern is different.</b>
-------------------	--

---

### Explanation

Check that the date is valid and that its format matches that of the pattern.

---

<b>IBM1545I S</b>	<b>First argument to <i>BUILTIN</i> name built-in function must be an array.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function with a first argument that is not an array. This message applies, for instance, to the DIMENSION, HBOUND, and LBOUND built-in functions.

---

<b>IBM1546I S</b>	<b>Second argument to <i>BUILTIN</i> name built-in function must have type CHARACTER(1) NONVARYING.</b>
-------------------	---

---

### Explanation

This applies to the PLIFILL built-in subroutine.

---

<b>IBM1547I S</b>	<b>Second argument to <i>BUILTIN</i> name built-in function must have computational type.</b>
-------------------	---

---

### Explanation

An expression contains the named built-in function with a second argument that has neither string nor numeric type.

---

<b>IBM1548I S</b>	<b><i>BUILTIN</i> function may not be used inside a BEGIN block.</b>
-------------------	--

---

### Explanation

The PLISTSIZE built-in functions may be used only in procedures.

---

<b>IBM1549I S</b>	<b><i>BUILTIN</i> function may be used only in PROCEDURES with LINKAGE(SYSTEM).</b>
-------------------	---

---

### Explanation

The PLISTSIZE built-in function may not be used in procedures with any of the linkages OPTLINK, PASCAL, etc.

---

<b>IBM1550I S</b>	<b>Argument to the <i>BUILTIN</i> name pseudovisible must be an EVENT variable.</b>
-------------------	---

---

### Explanation

This message applies to the COMPLETION and STATUS pseudovisibles.

---

<b>IBM1551I S</b>	<b>Argument to the <i>BUILTIN</i> name pseudovisible must be a TASK variable.</b>
-------------------	---

---

### Explanation

This message applies to the PRIORITY pseudovisible.

---

<b>IBM1552I S</b>	<b>Third argument to <i>BUILTIN</i> name built-in function must have computational type.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function with a third argument that has neither string nor numeric type. This message applies, for example, to the SUBSTR and CENTER built-in functions.

---

**IBM1553I S**      **The date-time pattern argument to *BUILTIN* name function must be a constant.**

### Explanation

For the named built-in function, the date-time pattern must be a constant.

---

**IBM1554I S**      **Argument to *BUILTIN* name built-in function must be either a NONVARYING BIT array reference or else an array expression with known length.**

### Explanation

The ALL and ANY built-in functions are restricted to two types of array expressions: an array expression that is a NONVARYING BIT array reference or an array expression that has known length. The first five examples below meet these restrictions, but the remaining examples do not.

```
dcl a(10) bit(16) varying;
dcl b(10) bit(16);

if all( b ) then ...
if any( a <> 'b' ) then ...
if all( a = b & a ) then ...
if any( 'b <> b' ) then ...
if all( a = 'b' | b = 'b' ) then ...
if any( a ) then ...
if all( substr(b,1,n) ) then ...
```

---

**IBM1555I S**      **Second argument to *BUILTIN* name built-in function must have computational type.**

### Explanation

An expression contains the named built-in function with a second argument that has neither string nor numeric type.

---

**IBM1556I S**      **Argument number *argument number* to *BUILTIN* name built-in function would force STRINGRANGE.**

### Explanation

If a third argument is given for one of the built-in functions INDEX, SEARCH, VERIFYR, or SCRUBOUT, it must be positive. If a third argument is given for one of the built-in functions SEARCHR and VERIFYR, it must be nonnegative. If a fourth argument is given for the built-in function REPLACE, it must be positive.

---

**IBM1557I S**      **Second argument to *BUILTIN* name built-in function must be positive.**

### Explanation

The second argument for the built-in functions CENTER, LEFT and RIGHT must not be zero or negative.

---

**IBM1558I S**      **Argument to VALID built-in function must have the attributes FIXED DECIMAL or PICTURE.**

### Explanation

The argument to the VALID built-in function must have exactly the indicated attributes. It is not sufficient that it can be converted to these attributes.

---

**IBM1559I S**      **SQRT(x) is undefined if x is REAL and negative.**

### Explanation

An expression contains the BUILTIN function SQRT applied to a restricted expression that evaluated to a number outside the domain of that function.

---

**IBM1560I S**      ***BUILTIN* function(x) is undefined if x is REAL and not positive.**

### Explanation

An expression contains the named built-in function applied to a restricted expression that evaluated to a number outside the domain of that function. This message applies, for instance, to the LOG, LOG2, and LOG10 built-in functions.

---

**IBM1561I S**      **RULES(ANS) does not allow ROUND to be applied to FIXED BIN.**

### Explanation

RULES(ANS) does not permit non-zero scale factors with FIXED BIN, and hence it does not allow ROUND to be applied to FIXED BIN (or BIT) arguments.

---

**IBM1562I S**      **Argument to *BUILTIN* name built-in function has invalid type.**

### Explanation

The argument to the HANDLE built-in must be a structure type, and conversely the argument to the TYPE built-in must be a handle.

---

<b>IBM1563I S</b>	<b>Second argument to <i>BUILTIN name</i> built-in function must be nonnegative.</b>
-------------------	--

---

### Explanation

The second argument for the built-in functions CHARACTER, BIT, and GRAPHIC must be zero or greater.

---

<b>IBM1564I S</b>	<b>Too few arguments have been specified for the <i>BUILTIN name</i> built-in function.</b>
-------------------	---

---

### Explanation

Supply the minimum number of arguments required.

---

<b>IBM1566I S</b>	<b><i>BUILTIN name</i>(x) is undefined for x outside the supported domain.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function applied to a restricted expression that evaluated to a number outside the supported domain of that function.

---

<b>IBM1568I S</b>	<b><i>BUILTIN function</i>(x,y) is undefined if x and y are both zero.</b>
-------------------	--

---

### Explanation

An expression contains the built-in function ATAN or ATAND applied to a restricted expression that evaluated to a number outside the domain of that function.

---

<b>IBM1569I S</b>	<b><i>BUILTIN name</i> argument must be a CONNECTED reference.</b>
-------------------	--

---

### Explanation

The argument to the named built-in function must be a reference (for example, not an expression or a literal), and that reference must be CONNECTED.

---

<b>IBM1570I S</b>	<b><i>BUILTIN name</i> argument must be a reference to a level 1 CONTROLLED variable.</b>
-------------------	---

---

### Explanation

The ALLOCATION built-in function cannot be used with structure members or with non-CONTROLLED variables.

---

<b>IBM1571I S</b>	<b><i>BUILTIN name</i> argument must be a reference to a level 1 BYADDR parameter.</b>
-------------------	--

---

### Explanation

The OMITTED built-in function cannot be used with BYVALUE parameters, structure members, or non-parameters.

---

<b>IBM1573I S</b>	<b>The use of * as an argument is permitted only for parameters declared with the OPTIONAL attribute.</b>
-------------------	---

---

### Explanation

Add the OPTIONAL attribute to the entry declaration or replace the \* by an actual argument.

---

<b>IBM1575I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN name</i> built-in function must have type POINTER or OFFSET.</b>
-------------------	--

---

### Explanation

The indicated argument to built-in functions such as PLIMOVE and COMPARE must be a locator.

---

<b>IBM1576I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN name</i> built-in function must have type CHARACTER(1) NONVARYING.</b>
-------------------	--

---

### Explanation

This applies to HEXIMAGE, CENTER, LEFT, RIGHT, MEMSQUEEZE, etc.

---

<b>IBM1577I S</b>	<b>First argument to <i>BUILTIN name</i> built-in function must have type POINTER.</b>
-------------------	--

---

### Explanation

This applies to the OFFSET built-in function.

---

<b>IBM1578I S</b>	<b>First argument to <i>BUILTIN name</i> built-in function must have type OFFSET.</b>
-------------------	---

---

### Explanation

This applies to the POINTER built-in function.

---

<b>IBM1579I S</b>	<b>Second argument to <i>BUILTIN name</i> built-in function must have type AREA.</b>
-------------------	--

---

### Explanation

This applies to the OFFSET and POINTER built-in functions.

---

<b>IBM1580I S</b>	<b>First argument to <i>BUILTIN</i> name built-in function is an OFFSET value.</b>
-------------------	--

---

### Explanation

If the first argument to built-in functions such as PLIMOVE and COMPARE has the attribute OFFSET, it must be an OFFSET reference not an OFFSET value.

---

<b>IBM1581I S</b>	<b>First argument to <i>BUILTIN</i> name built-in function is an OFFSET variable declared without an AREA qualifier.</b>
-------------------	--

---

### Explanation

If the first argument to built-in functions such as PLIMOVE and COMPARE is an OFFSET variable, that OFFSET variable must be declared with an AREA qualifier so that the offset can be converted to an address.

---

<b>IBM1582I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN</i> name built-in function is an OFFSET value.</b>
-------------------	--

---

### Explanation

If the indicated argument to built-in functions such as PLIMOVE and COMPARE has the attribute OFFSET, it must be an OFFSET reference not an OFFSET value.

---

<b>IBM1583I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN</i> name built-in function is an OFFSET variable declared without an AREA qualifier.</b>
-------------------	--

---

### Explanation

If the indicated argument to built-in functions such as PLIMOVE and COMPARE is an OFFSET variable, that OFFSET variable must be declared with an AREA qualifier so that the offset can be converted to an address.

---

<b>IBM1584I S</b>	<b>Second argument to <i>BUILTIN</i> name built-in function must have type OFFSET.</b>
-------------------	--

---

### Explanation

This applies to the OFFSETDIFF built-in function.

---

<b>IBM1585I S</b>	<b>Second argument to <i>BUILTIN</i> name built-in function must have type POINTER.</b>
-------------------	---

---

### Explanation

This applies to the POINTERDIFF built-in function.

---

<b>IBM1586I S</b>	<b>Argument to the <i>STRING</i> built-in function must be CONNECTED.</b>
-------------------	---

---

### Explanation

The *STRING* built-in function and pseudovalue cannot be applied to discontinuous array cross-sections or to array parameters not declared with the CONNECTED attribute.

---

<b>IBM1587I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN</i> name built-in function must have the ENTRY attribute.</b>
-------------------	---

---

### Explanation

Any other argument type is invalid. This message applies to the PLISRTx built-in functions.

---

<b>IBM1588I S</b>	<b>First argument to <i>BUILTIN</i> name built-in function must have type GRAPHIC.</b>
-------------------	--

---

### Explanation

This applies to the CHARGGRAPHIC built-in function. For instance, in the following example, g should be declared as graphic, not as char.

```
decl c char(10);
decl g char(5);

c = charg( g );
```

---

<b>IBM1589I S</b>	<b><i>BUILTIN</i> name argument must not have any subscripts.</b>
-------------------	---

---

### Explanation

The LOCATION and BITLOCATION built-in functions cannot be applied to subscripted references.

---

<b>IBM1590I S</b>	<b>Argument to the <i>STRING</i> built-in function must not be a UNION and must not contain a UNION.</b>
-------------------	--

---

### Explanation

The *STRING* built-in function and pseudovalue cannot be applied to UNIONS or to structures containing UNIONS.

---

**IBM1591I S** All members of an argument to the **STRING** built-in function must have the **UNALIGNED** attribute.

---

### Explanation

The **STRING** built-in function and pseudovalue cannot be applied to structures or arrays containing elements with the **ALIGNED** attribute.

---

**IBM1592I S** All members of an argument to the **STRING** built-in function must have the **NONVARYING** attribute.

---

### Explanation

The **STRING** built-in function and pseudovalue cannot be applied to structures or arrays containing **VARYING** strings.

---

**IBM1593I S** All members of an argument to the **STRING** built-in function must have string type.

---

### Explanation

The **STRING** built-in function and pseudovalue cannot be applied to structures or arrays containing noncomputational types or arithmetic types other than pictures.

---

**IBM1594I S** All members of an argument to the **STRING** built-in function must have the same string type.

---

### Explanation

The **STRING** built-in function and pseudovalue cannot be applied to structures or arrays containing different string types, for example, **BIT** and **CHARACTER** strings.

---

**IBM1595I S** First argument to **BUILTIN** name built-in function must have type **REAL FLOAT**.

---

### Explanation

This applies to the floating-point inquiry and manipulation built-in functions such as **HUGE** and **EXPONENT**.

---

**IBM1596I S** Second argument to **BUILTIN** name built-in function must have type **CHARACTER**.

---

### Explanation

This applies to the **EDIT** built-in function.

---

**IBM1597I S** **BUILTIN** name argument must have type **TASK**.

---

### Explanation

This applies to the **PRIORITY** built-in function.

---

**IBM1598I S** **BUILTIN** name argument must have type **EVENT**.

---

### Explanation

This applies to the **COMPLETION** and **STATUS** built-in functions.

---

**IBM1599I S** The built-in function *variable name* may not be used as a pseudovalue.

---

### Explanation

The named built-in function is not a pseudovalue and may not be used as one.

---

**IBM1600I S** Source to **BUILTIN** name pseudovalue must be scalar.

---

### Explanation

It is invalid to assign an array, structure, or union to one of the built-in functions **ONCHAR**, **ONSOURCE**, or **ONGSOURCE**.

---

**IBM1601I S** The identifier *identifier* is not the name of a built-in function. Any use of it is unsupported.

---

### Explanation

The **BUILTIN** attribute can be applied only to identifiers that are the names of built-in functions or subroutines.

---

**IBM1602I S** Fourth argument to **BUILTIN** name built-in function must have the attributes **REAL FIXED BIN(31,0)**.

---

### Explanation

This applies to the **PLISRTx** built-in functions. For instance, in the following example, **rc** should be declared as fixed bin(31), not fixed bin(15).

```
decl rc fixed bin(15);

call plisrta( 'SORT FIELDS=(1,80,CH,A) ',
             'RECORD TYPE=F,LENGTH=(80) ',
             256000,
             rc );
```

---

**IBM1603I S**      ***BUILTIN name* argument must not have the **CONSTANT** attribute.**

---

### Explanation

This applies to the ADDR and similar built-in functions. It is invalid, for instance, to apply the ADDR built-in function to a label constant.

---

**IBM1604I S**      ***BUILTIN function* argument must be nonnegative.**

---

### Explanation

The argument for the built-in functions LOW and HIGH must be zero or greater.

---

**IBM1605I S**      **Argument to ENTRYADDR built-in function must be an ENTRY variable or an EXTERNAL ENTRY constant.**

---

### Explanation

The ENTRYADDR built-in function cannot be applied to non-ENTRYs or to INTERNAL ENTRY constants.

---

**IBM1606I S**      **Argument to *variable name* pseudovisible must be a reference.**

---

### Explanation

Pseudovisibles cannot be applied to expressions.

```
unspec( 12 ) = '00'b4;
```

---

**IBM1607I S**      **First argument to *variable name* pseudovisible must be a reference.**

---

### Explanation

The SUBSTR pseudovisible cannot be applied to expressions.

```
substr( 'nope', 1, 1 ) = 'd';
```

---

**IBM1608I S**      **Argument to *variable name* pseudovisible must be a scalar.**

---

### Explanation

The compiler does not support the named pseudovisible applied to arrays, structures, or unions.

---

**IBM1609I S**      **First argument to *variable name* pseudovisible must be a scalar.**

---

### Explanation

The compiler does not support the named pseudovisible applied to arrays, structures, or unions.

---

**IBM1610I S**      **Argument to *variable name* pseudovisible must be COMPLEX.**

---

### Explanation

The REAL and IMAG pseudovisible can be applied only to COMPLEX arithmetic variables.

---

**IBM1611I S**      **First argument to *BUILTIN name* pseudovisible must have string type.**

---

### Explanation

The SUBSTR pseudovisible cannot be applied to numeric variables or to noncomputational values.

---

**IBM1612I S**      **Argument to the ENTRYADDR pseudovisible must be an ENTRY variable.**

---

### Explanation

The ENTRYADDR pseudovisible can be applied only to ENTRY variables.

---

**IBM1613I S**      **Argument to *BUILTIN name* built-in function has attributes that conflict with *file attribute*.**

---

### Explanation

The indicated built-in function cannot be applied to file constants with attributes that conflict with the indicated attribute.

---

**IBM1614I S**      **Argument to *BUILTIN name* built-in function has attributes that conflict with **STREAM**.**

---

### Explanation

The indicated built-in function cannot be applied to non-STREAM files.



---

**IBM1615I S**      **Argument to *BUILTIN* name built-in function has attributes that conflict with PRINT.**

---

### Explanation

The indicated built-in function cannot be applied to non-PRINT files.

---

**IBM1616I S**      **Attributes and ENVIRONMENT options for file *file name* conflict.**

---

### Explanation

Specified file attributes and ENVIRONMENT options on a declaration statement are in conflict. The following DECLARE statement is an example of this type of conflict:

```
dcl file f1 direct env(consecutive);
```

---

**IBM1617I S**      **DIRECT attribute for file *file name* needs ENVIRONMENT option specification of INDEXED, REGIONAL, RELATIVE, or VSAM.**

---

### Explanation

Use of the DIRECT file attribute needs an ENVIRONMENT option specification of INDEXED, REGIONAL, RELATIVE, or VSAM.

```
dcl file f1 direct env(relative);
```

---

**IBM1618I S**      **Syntax of the INCLUDE statement is incorrect.**

---

### Explanation

%INCLUDE must be followed by a name and either a semicolon or else a second name in parenthesis and then a semicolon.

---

**IBM1619I S**      **File specification after INCLUDE is too long.**

---

### Explanation

The maximum length of the file specification is 8 characters.

---

**IBM1620I S**      **File specification missing after INCLUDE.**

---

### Explanation

%INCLUDE must be followed by a file name, not just a semicolon.

---

**IBM1621I S**      **NODESCRIPTOR attribute is invalid if any parameters have bit alignment.**

---

### Explanation

If a parameter is an unaligned bit string or an array or structure consisting entirely of unaligned bit strings, then OPTIONS(NODESCRIPTOR) must not be specified or implied.

---

**IBM1622I S**      **The number of elements and dimension specifications in an aggregate must not exceed 131071.**

---

### Explanation

Aggregates with more than 131071 elements and dimension specifications would require descriptors that would require too much storage.

---

**IBM1623I S**      **The dot-qualified reference *reference name* is unknown.**

---

### Explanation

The named reference is not a member of any structure or union declared in the block in which it is referenced or declared in any block containing that block.

---

**IBM1624I S**      **Argument number *argument number* to *BUILTIN* name built-in function must be a CONNECTED array.**

---

### Explanation

The named argument must not be a nonconnected slice of an array, and if it is a parameter, it must have the CONNECTED attribute.

---

**IBM1625I S**      **Extent must be a scalar.**

---

### Explanation

An expression specifying an array bound, a string length or an AREA size must not be a reference to an array, a structure, or a union.

---

**IBM1626I S**      **Extent must have computational type.**

---

### Explanation

An expression specifying an array bound, a string length, or an AREA size must have numeric or string type.

---

**IBM1627I S**      **Subscript expressions must be scalars.**

---

### Explanation

An expression used as a subscript must not be an array, structure, or union reference.

---

**IBM1628I S**      **Index number *index number* into the array *variable name* must have computational type.**

---

### Explanation

Only expressions having numeric or string type may be used as subscripts.

---

**IBM1629I S**      **Extents for **STATIC** variable are not constant.**

---

### Explanation

Array bounds, string lengths, and AREA sizes in **STATIC** variables must evaluate at compile-time to constants.

---

**IBM1630I S**      **Number of dimensions in arrays do not match.**

---

### Explanation

In the assignment of one array to another, the two arrays must have the same number of dimensions.

---

**IBM1631I S**      **Upper and lower bounds in arrays do not match.**

---

### Explanation

In the assignment of one array to another, the two arrays must have the same lower and upper bound in each dimension.

---

**IBM1632I S**      **Index number *index number* into the variable *variable name* is less than the lower bound for that dimension.**

---

### Explanation

Executing such a program would most likely cause a protection exception.

```
dc1 a(5:10)  fixed bin(31);  
  
a(1) = 0;
```

---

**IBM1633I S**      **Index number *index number* into the variable *variable name* is**

---

**greater than the upper bound for that dimension.**

### Explanation

Executing such a program would most likely cause a protection exception.

```
dc1 a(5:10)  fixed bin(31);  
  
a(20) = 0;
```

---

**IBM1634I S**      **Number of dimensions in subelements of structures do not match.**

---

### Explanation

In structure assignments and structure expressions, all subelements that are arrays must have the same number of dimensions.

```
dc1  
  1 a,  
  2 b(8)      fixed bin,  
  2 c          char(10);  
  
dc1  
  1 x,  
  2 y(8,9)    fixed bin,  
  2 z          char(10);  
  
a = x;
```

---

**IBM1635I S**      **Upper and lower bounds in subelements of structures do not match.**

---

### Explanation

In structure assignments and structure expressions, all subelements that are arrays must have the same bounds.

```
dc1  
  1 a,  
  2 b(8)      fixed bin,  
  2 c          char(10);  
  
dc1  
  1 x,  
  2 y(9)      fixed bin,  
  2 z          char(10);  
  
a = x;
```

---

**IBM1636I S**      **Substructuring in subelements of structures do not match.**

---

## Explanation

In structure assignments and structure expressions, if any element of one structure is itself a structure, then the corresponding element in all the other structures must also be a similar structure.

---

**IBM1637I S**      **Number of subelements in structures do not match.**

---

## Explanation

In structure assignments and structure expressions, all structures must have the same number of elements.

---

**IBM1638I S**      **Structures and unions are not permitted in GENERIC descriptions.**

---

## Explanation

Only scalars and arrays of scalars are permitted in GENERIC descriptions.

---

**IBM1639I S**      **The aggregate *aggregate-name* contains only noncomputational values. The aggregate will be ignored.**

---

## Explanation

Aggregates containing no strings or arithmetic variables cannot be used in PUT or GET statements.

---

**IBM1640I S**      **The aggregate *aggregate-name* contains one or more unions and cannot be used in stream I/O.**

---

## Explanation

Aggregates containing one or more UNION statements cannot be used in PUT or GET statements.

---

**IBM1641I S**      **References to slices of the array of structures *structure-name* are not permitted.**

---

## Explanation

An array of structures must be referenced in its entirety or element by element.

```
dc1
  1 a(8,9),
  2 b      fixed bin,
  2 c      char(10);

a(2,*) = 0;
```

---

**IBM1642I S**      **References to slices of the array of unions *union-name* are not permitted.**

---

## Explanation

An array of unions must be referenced in its entirety or element by element.

```
dc1
  1 a(8,9) union,
  2 b      fixed bin,
  2 c      char(10);

a(2,*) = 0;
```

---

**IBM1643I S**      **Each dimension of an array must contain no more than 2147483647 elements.**

---

## Explanation

It must be possible to compute the value of the DIMENSION built-in function for an array. In DECLARE x(x:y), (y-x+1) must be less than 214748648.

---

**IBM1644I S**      **Aggregate contains more than 15 logical levels.**

---

## Explanation

The maximum physical level allowed is 255, but the maximum logical level is 15.

---

**IBM1645I S**      **Data aggregate exceeds the maximum length.**

---

## Explanation

Aggregates containing unaligned bits must be less than 2\*\*28 bytes in size while all other aggregates must be less than 2\*\*31.

---

**IBM1646I S**      **SIZE would be raised in assigning TO value to control variable.**

---

## Explanation

If the TO value is bigger than the maximum value that a FIXED or PICTURE variable can hold, then a loop dominated by that variable would cause SIZE to be raised. For example, in the first code fragment below, x can not be assigned a value bigger than 99. In the second code fragment below, y can not be assigned a value bigger than 32767.

```
dc1 x pic'99';
```

```

do x = 1 to 100;
  put skip list( x );
end;

dcl y fixed bin(15);

do y = 1 to 32768;
  put skip list( y );
end;

```

---

**IBM1647I S**      **Too few subscripts specified for the variable *variable name*.**

### Explanation

The number of subscripts given for a variable must match that variable's number of dimensions

---

**IBM1648I S**      **Too many subscripts specified for the variable *variable name*.**

### Explanation

The number of subscripts given for a variable must match that variable's number of dimensions

---

**IBM1649I S**      **The number of inherited dimensions plus the number of member dimensions exceeds 15.**

### Explanation

Arrays with more than 15 dimensions are not supported.

```

dcl
  1 dim7(2,3,4,5,6,7,8),
  2 dim7more(2,3,4,5,6,7,8)
  3 dim2many(2,3) fixed bin,
  3 * fixed bin,
  2 * char(10);

```

---

**IBM1650I S**      **The LIKE reference is neither a structure nor a union.**

### Explanation

The LIKE reference cannot be a scalar or an array of scalars.

```

dcl
  a fixed bin,
  1 b like a;

```

---

**IBM1651I S**      **The *keyword name* reference is ambiguous.**

### Explanation

The LIKE reference needs enough qualification to be unique. This message also applies to INDFOR and VALUELISTFROM.

```

dcl
  1 x like b,
  1 a,
  2 b,
  3 c,
  3 d,
  2 e,
  3 f,
  3 g,
  1 h,
  2 b,
  3 j,
  3 k;

```

---

**IBM1652I S**      **Neither the LIKE reference nor any of its substructures can be declared with the LIKE attribute.**

### Explanation

LIKE from LIKE is not supported.

```

dcl
  1 a,
  2 b1 like c,
  2 b2 like c,
  1 c,
  2 d fixed bin,
  2 e fixed bin;

dcl
  1 x like a;

```

---

**IBM1653I S**      **A LIKE reference in an ENTRY declaration must not be a member of a structure or union containing that ENTRY declaration.**

### Explanation

LIKE definitions must not be recursive.

```

dcl
  1 a based,
  2 b1 fixed bin(31),
  2 b2 fixed bin(31),
  2 b3,
  3 c limited entry( like a );

```

---

**IBM1654I S**      **The *keyword name* reference is unknown.**

## Explanation

The LIKE reference must be known in the block containing the LIKE attribute specification. This message also applies to INDFOR and VALUelistFROM.

---

**IBM1655I S** Only CONTROLLED variables can be passed to CONTROLLED parameters.

## Explanation

If a parameter is declared as controlled, non-controlled variables and expressions with operators cannot be passed to it.

```
dc1 c char(20);  
call a(c);  
  
a: proc( b );  
    dc1 b controlled char(*);
```

---

**IBM1656I S** A CONTROLLED variable passed to a CONTROLLED parameter must have the same attributes as that parameter.

## Explanation

Differences in any arithmetic attributes are not permitted. The following example will emit this message.

```
dc1 x fixed bin(15) controlled;  
call a(x);  
  
a: proc( b );  
    dc1 b controlled fixed bin(31);
```

---

**IBM1657I S** A subscript has been specified for the non-array variable *variable name*.

## Explanation

Subscripts are permitted only in array element references.

---

**IBM1658I S** Argument number *argument-number* in ENTRY reference *ENTRY name* is an array expression requiring a temporary array with strings of unknown length.

## Explanation

Temporary arrays of strings are supported only if the string length is known.

```
dc1 a entry, (b(10),c(10)) char(20) var;  
call a( b || c );
```

---

**IBM1659I S** After LIKE expansion, aggregate would contain more than 15 logical levels.

## Explanation

The total number of logical levels after LIKE expansion must not exceed 15.

---

**IBM1660I S** The size ( *record-size* ) of the record conflicts with the RECSIZE ( *recsize* ) specified in the ENVIRONMENT attribute.

## Explanation

Execution of the statement would raise the RECORD condition.

```
dc1 datei          file record output  
total ) ;          env( fb recsize (80)  
  
dc1 satzaus        char (100);  
write file(datei) from(satzaus);
```

---

**IBM1661I S** Aggregates cannot be assigned to scalars.

## Explanation

Only scalars can be assigned to scalars.

---

**IBM1662I S** Unsupported use of union or structure containing a union.

## Explanation

Unions and structures containing unions may not be used in expressions except when used as an argument to a built-in function such as ADDR or UNSPEC.

---

**IBM1663I S** Unsupported or invalid use of structure expression.

## Explanation

Structure expressions may not, for instance, be assigned to arrays of scalars.

---

**IBM1664I S** Array expressions cannot be assigned to non-arrays.

## Explanation

Array expressions may not, for instance, be assigned to structures or scalars.

---

**IBM1665I S      E15 sort exit routines must have the RETURNS attribute.**

---

## Explanation

An E15 sort exit have the RETURNS attribute since it will be invoked as a function by the sort library routine.

---

**IBM1666I S      E15 sort exit routines must return a CHARACTER string.**

---

## Explanation

An E15 sort exit may return a NONVARYING, VARYING or VARYINGZ CHARACTER string, but it must be a character string.

---

**IBM1667I S      Target in assignment is NONASSIGNABLE.**

---

## Explanation

The target in an assignment statement must not have the NONASSIGNABLE attribute.

---

**IBM1668I S      Target in assignment is a function reference.**

---

## Explanation

The target of an assignment statement must be an array, structure, union or scalar reference. Function references are not permitted as target of assignments.

---

**IBM1669I S      Unsupported assignment to a target containing a UNION.**

---

## Explanation

Assignments to UNIONS or structures containing UNIONS are restricted. Compound assignment operators are not supported, the source must be a similar structure that contains matching UNIONS, both the source and target must have extents known at compile time, and all UNIONS involved must occupy a whole number of bytes.

---

**IBM1670I S      A PROCEDURE containing ENTRY statements with differing RETURNS attributes must return values BYADDR.**

---

## Explanation

In a PROCEDURE containing ENTRY statements, if the PROCEDURE and ENTRY statements do not all

have the same RETURNS attributes, then all values must be returned BYADDR. You can compile with DFT(RETURNS(BYADDR)) to force this, or you can add the BYADDR attribute to each set of RETURNS attribute. For example, you must either compile the following program with DFT(RETURNS(BYADDR)) or change the "fixed bin" to "fixed bin byaddr".

```
a: proc;  
  return;  
b: entry returns( fixed bin );  
  return( 1729 );  
end;
```

---

**IBM1671I S      The source in a structure assignment must be a scalar expression or a matching structure.**

---

## Explanation

The source in a structure assignment cannot be an array of scalars or a structure that does not match the target.

---

**IBM1672I S      In multiple BY NAME assignments, if one target is an array of structures, then all must be.**

---

## Explanation

A BY NAME assignment may have not have a mixture of array and non-array targets.

```
decl 1 a, 2 a1 fixed bin, 2 a2 fixed bin;  
decl 1 b(3), 2 a1 fixed bin, 2 a2 fixed bin;  
decl 1 c, 2 a1 fixed bin, 2 a2 fixed bin;  
  
a,b = c, by name;
```

---

**IBM1673I S      The target in a compound concatenate and assign must be a VARYING or VARYINGZ string.**

---

## Explanation

Only the simple assignment operator can be used to assign to a NONVARYING string.

---

**IBM1674I S      Target in assignment contains UNIONS.**

---

## Explanation

The target in an assignment must not contain any UNIONS.

---

<b>IBM1675I S</b>	<b>FROMALIEN option cannot be used with MAIN.</b>
-------------------	---

---

### Explanation

These two options are mutually exclusive.

---

<b>IBM1676I S</b>	<b>Source in assignment to LIMITED ENTRY must be either a non-nested ENTRY constant or another LIMITED ENTRY.</b>
-------------------	---

---

### Explanation

ENTRY constants representing nested procedures and ENTRY variables not declared with the LIMITED attribute cannot be assigned to variables with the attributes LIMITED ENTRY.

---

<b>IBM1677I S</b>	<b>Assignment of ENTRY to <i>target type</i> is invalid. If the ENTRY should be invoked, an argument list must be provided.</b>
-------------------	---

---

### Explanation

An ENTRY constant or variable without an argument list will not be invoked and hence can be assigned only to an ENTRY variable.

---

<b>IBM1678I S</b>	<b>Assignment of <i>source type</i> to <i>target type</i> is invalid.</b>
-------------------	---

---

### Explanation

The target attributes conflict with the source attributes.

---

<b>IBM1679I S</b>	<b>Assignment of POINTER to OFFSET is invalid unless the OFFSET is declared with an AREA qualifier.</b>
-------------------	---

---

### Explanation

POINTER expressions can be converted to OFFSET only if the OFFSET is declared with an AREA qualifier.

---

<b>IBM1680I S</b>	<b>Assignment of OFFSET to POINTER is invalid unless the OFFSET is declared with an AREA qualifier.</b>
-------------------	---

---

### Explanation

OFFSET variables can be converted to POINTER only if the OFFSET is declared with an AREA qualifier.

---

<b>IBM1681I S</b>	<b>The number of preprocessor invocations specified exceeds the maximum number (25) allowed.</b>
-------------------	--

---

### Explanation

A maximum of 25 preprocessor invocations can be specified in the PP option or in combination with the MACRO option.

---

<b>IBM1682I S</b>	<b>The target in a BY NAME assignment must be a structure.</b>
-------------------	--

---

### Explanation

The target in a BY NAME assignment cannot be an array or a scalar.

---

<b>IBM1683I S</b>	<b>Set of matching names in the expansion of BY NAME assignment must contain either all structures or no structures.</b>
-------------------	--

---

### Explanation

For instance, in the assignment,  $x = y$ , by name, if both  $x$  and  $y$  immediately contain a member  $z$ , then either both  $x.z$  and  $y.z$  are structures or neither  $x.z$  and  $y.z$  is a structure.

---

<b>IBM1684I S</b>	<b>Number of dimensions in the BY NAME corresponding elements <i>variable name</i> and <i>variable name</i> do not match.</b>
-------------------	---

---

### Explanation

In a BY NAME assignment, arrays with matching names must have the same number of dimensions.

```
dc1
  1 a,
  2 b(4,5)  bin(31,0),
  2 c      bin(31,0);
dc1
  1 x,
  2 b(4)    bin(31,0),
  2 c      bin(31,0);

a = x, by name;
```

---

<b>IBM1685I S</b>	<b>Upper and lower bounds in BY NAME corresponding elements <i>variable name</i> and <i>variable name</i> do not match.</b>
-------------------	---

---

### Explanation

In a BY NAME assignment, arrays with matching names must have the same lower and upper bounds.

```

dcl
  1 a,
  2 b(1:5) bin(31,0),
  2 c bin(31,0);
dcl
  1 x,
  2 b(0:4) bin(31,0),
  2 c bin(31,0);

a = x, by name;

```

**IBM1686I S** **BY NAME assignment contains UNIONS.**

### Explanation

The target structure in a BY NAME assignment must not contain any UNIONS even if no names in those UNIONS match names in the source. The source expression also must contain any unions or structures containing unions.

**IBM1687I S** ***reserved name* cannot be declared with OPTIONS other than ASM.**

### Explanation

If the DLI compiler option is specified, PLITDLI cannot be declared with any OPTIONS other than OPTIONS(ASM).

**IBM1688I S** ***reserved name* cannot be declared with an entry description list.**

### Explanation

If the DLI compiler option is specified, PLITDLI cannot be declared with an entry description list.

**IBM1689I S** ***reserved name* cannot be declared as a function.**

### Explanation

If the DLI compiler option is specified, PLITDLI cannot be declared as a function.

**IBM1690I S** **OPTIONS(*language-name*) is not supported for functions.**

### Explanation

Functions, i.e. entries declared with the RETURNS attribute, cannot be declared with OPTIONS(ASM) or OPTIONS(COBOL).

**IBM1691I S** **Extents in ENTRY descriptors must be asterisks or restricted expressions with computational type.**

### Explanation

In ENTRY descriptors, each array bound, string length and AREA size must be specified either with an asterisk or with a restricted expression that has computational type.

**IBM1692I S** **An ENTRY invoked as a function must have the RETURNS attribute.**

### Explanation

There is no default RETURNS attribute.

```

dcl e entry;

a = e();

```

**IBM1693I S** ***call-option* option repeated in CALL statement.**

### Explanation

The TASK, EVENT and PRIORITY options may be specified only once in any CALL statement.

**IBM1694I S** **Reference in CALL statement must not be a built-in function.**

### Explanation

CALL x is invalid unless x is a built-in subroutine, an ENTRY constant, or an ENTRY variable. Built-in functions are not built-in references. For example, "Call SQRT(x)" is invalid.

**IBM1695I S** **Reference in CALL statement must either be a built-in subroutine or have type ENTRY.**

### Explanation

CALL x is invalid unless x is a built-in subroutine, an ENTRY constant, or an ENTRY variable.

**IBM1696I S** **RETURN statement without an expression is invalid inside a nested PROCEDURE that specified the RETURNS attribute.**

### Explanation

All RETURN statements inside functions must specify a value to be returned.

```

a: proc returns( fixed bin );

```



```
return;
```

---

**IBM1697I S**      **RETURN statement is invalid inside a PROCEDURE that did not specify the RETURNS attribute.**

---

### Explanation

A statement of the form RETURN(x) is valid inside only PROCEDURES that are defined with a RETURNS attribute.

---

**IBM1698I S**      **RETURN statement with an expression is invalid inside a BEGIN in a PROCEDURE that does not have the RETURNS(BYADDR) attribute.**

---

### Explanation

A statement of the form RETURN(x) is valid inside a BEGIN block only if the PROCEDURE enclosing that BEGIN block has the RETURNS(BYADDR) attribute explicitly or by default.

---

**IBM1699I S**      **Argument number *argument-number* in ENTRY reference *ENTRY name* is an aggregate. This conflicts with the BYVALUE option.**

---

### Explanation

Arrays, structures, and unions cannot be passed BYVALUE.

---

**IBM1700I S**      ***attribute* must be passed BYADDR.**

---

### Explanation

Even AREA variables with constant size must be passed BYADDR.

---

**IBM1701I S**      **Argument number *argument-number* in ENTRY reference *ENTRY name* is a string with unknown size. This conflicts with the BYVALUE option.**

---

### Explanation

Only strings with constant size can be passed BYVALUE.

---

**IBM1702I S**      **The *attribute keyword* attribute is invalid as a RETURNS subattribute.**

---

### Explanation

Structures and union may not be returned. The following code example is invalid:

```
dcl a entry returns( 1 union, 2 ptr, 2 ptr );
```

---

**IBM1703I S**      **Reference in CALL statement must not be an aggregate reference.**

---

### Explanation

CALL references must be scalars.

```
dcl ea(10) entry;  
call ea;
```

---

**IBM1704I S**      **Too many argument lists have been specified for the variable *variable name*.**

---

### Explanation

A function can have only one argument list unless it returns an ENTRY, in which case it can have only two argument lists unless the returned ENTRY returns an ENTRY, and so on.

---

**IBM1705I S**      **RETURN expression with attribute *source type* is invalid for RETURNS options specifying the attribute *target type*.**

---

### Explanation

The RETURN expression must have a type that can be converted to the type indicated in the RETURNS option.

```
a: proc returns( pointer )  
    return( 0 );  
end;
```

---

**IBM1706I S**      **RETURN expression with attribute *source type* is invalid for RETURNS options specifying the attribute *target type*. If the ENTRY should be invoked, an argument list must be provided.**

---

## Explanation

The RETURN expression must have a type that can be converted to the type indicated in the RETURNS option.

```
a: proc returns( pointer )  
  
    dcl f entry returns( pointer );  
    return( f );  
end;
```

---

**IBM1707I S**      **RETURN expression with attribute *source type* is invalid for RETURNS options specifying the attribute LIMITED ENTRY.**

## Explanation

Only an EXTERNAL ENTRY CONSTANT, an ENTRY CONSTANT representing a non-nested PROCEDURE, or an ENTRY VARIABLE with the LIMITED attribute can be specified as the RETURNS expression in a function that returns a LIMITED ENTRY.

---

**IBM1708I S**      **RETURN expression with attribute *POINTER* is invalid for RETURNS options specifying the attribute *OFFSET* since the *OFFSET* attribute is not declared with an *AREA* qualifier.**

## Explanation

POINTER expressions can be converted to OFFSET only if the offset is declared with an AREA qualifier.

---

**IBM1709I S**      **RETURN expression with attribute *OFFSET* is invalid for RETURNS options specifying the attribute *POINTER* since the *OFFSET* expression is not an *OFFSET* variable declared with an *AREA* qualifier.**

## Explanation

OFFSET variables can be converted to POINTER only if the OFFSET is declared with an AREA qualifier.

---

**IBM1710I S**      **ORDINAL type in RETURN expression and RETURNS option must match.**

## Explanation

In a function that returns an ordinal, the ORDINAL type in any RETURN expression must be the same as returned by the function.

```
a: proc returns( ordinal color );  
  
    dcl i ordinal intensity;  
    return( i );  
end;
```

---

**IBM1711I S**      **Expression in RETURN statement must be scalar.**

## Explanation

The expression in a RETURN statement must not be an array, a structure, or a union.

---

**IBM1712I S**      **External name specification must be a non-null string.**

## Explanation

EXTERNAL("") is invalid.

---

**IBM1713I S**      **Function *function name* contains no RETURN statement.**

## Explanation

Functions must contain at least one RETURN statement.

---

**IBM1714I S**      **Extents in RETURNS descriptors must be constants.**

## Explanation

In RETURNS descriptors, each array bound, string length, and AREA size must be specified with a restricted expression that has computational type. Unlike ENTRY descriptors, asterisks are not permitted.

---

**IBM1715I S**      **Exit from an ON-unit via RETURN is invalid.**

## Explanation

RETURN statements are not permitted in an ON-unit or any of its contained BEGIN blocks unless the contained block is also contained in a procedure defined in the ON-unit.

---

**IBM1716I S**      **FORMAT expression must be a scalar value.**

## Explanation

Expressions in FORMAT lists, including SKIP clauses, must represent scalar values.

---

**IBM1717I S**      **FORMAT expression must have computational type.**

## Explanation

Expressions in FORMAT lists, including SKIP clauses, must have computational type so that the expression can be converted to FIXED BIN(31).

---

**IBM1718I S**      ***source type is invalid as a Boolean expression.***

---

## Explanation

The expression in an IF, WHILE, UNTIL, SELECT, or WHEN clause must have computational type so that it can be converted to BIT(1).

---

**IBM1719I S**      ***ENTRY is invalid as a Boolean expression. If an ENTRY should be invoked, an argument list must be provided.***

---

## Explanation

The expression in an IF, WHILE, UNTIL, SELECT, or WHEN clause must have computational type so that it can be converted to BIT(1). An ENTRY cannot be used as a Boolean expression. If the ENTRY is a function which should be invoked, an argument list, even if it consists only of a left and right parenthesis, must be provided.

---

**IBM1720I S**      ***Expression for calculating size of variable with adjustable extents is too complicated. Variable may be defined in terms of itself.***

---

## Explanation

An expression used in calculating the size of a variable must not depend on any values that the variable may have because those values do not exist until storage can be allocated for the variable.

---

**IBM1721I S**      ***Expression contains too many nested subexpressions.***

---

## Explanation

The compiler's space for evaluating expressions has been exhausted. Rewrite the expression in terms of simpler expressions.

---

**IBM1722I S**      ***The number of error messages allowed by the MAXMSG option has been exceeded.***

---

## Explanation

Compilation will terminate when the number of messages has exceeded the limit set in the MAXMSG compiler option.

---

**IBM1723I S**      ***Result of concatenating two literals is too long.***

---

## Explanation

The length of the string literal produced by concatenating two string literals must not be greater than the maximum allowed for a literal with the derived string type.

---

**IBM1724I S**      ***Addition of source type and target type is invalid.***

---

## Explanation

One of the operands in an addition must be computational and the other must be either computational or a locator.

---

**IBM1725I S**      ***Addition of source type and target type is invalid. If an ENTRY should be invoked, an argument list must be provided.***

---

## Explanation

An ENTRY cannot be used as an arithmetic operand. If the ENTRY is a function which should be invoked, an argument list, even if it consists only of a left and right parenthesis, must be provided.

---

**IBM1726I S**      ***Subtraction of target type from source type is invalid.***

---

## Explanation

The first operand in a subtraction must be computational or a locator. The second operand can be a locator only if the first is a locator. Otherwise, the second operand must be computational.

---

**IBM1727I S**      ***Subtraction of target type from source type is invalid. If an ENTRY should be invoked, an argument list must be provided.***

---

## Explanation

An ENTRY cannot be used as an arithmetic operand. If the ENTRY is a function which should be invoked, an argument list, even if it consists only of a left and right parenthesis, must be provided.

---

**IBM1728I S**      ***Multiplication of source type by target type is invalid.***

---

## Explanation

Both operands in a multiplication must be computational.

---

<b>IBM1729I S</b>	<b>Multiplication of <i>source type</i> by <i>target type</i> is invalid. If an ENTRY should be invoked, an argument list must be provided.</b>
-------------------	---

---

### Explanation

An ENTRY cannot be used as an arithmetic operand. If the ENTRY is a function which should be invoked, an argument list, even if it consists only of a left and right parenthesis, must be provided.

---

<b>IBM1730I S</b>	<b>Division of <i>source type</i> by <i>target type</i> is invalid.</b>
-------------------	---

---

### Explanation

Both operands in a division must be computational.

---

<b>IBM1731I S</b>	<b>Division of <i>source type</i> by <i>target type</i> is invalid. If an ENTRY should be invoked, an argument list must be provided.</b>
-------------------	---

---

### Explanation

An ENTRY cannot be used as an arithmetic operand. If the ENTRY is a function which should be invoked, an argument list, even if it consists only of a left and right parenthesis, must be provided.

---

<b>IBM1732I S</b>	<b>Unsupported use of aggregate expression.</b>
-------------------	---

---

### Explanation

Aggregate expressions are supported only as the source in an assignment statement and, with some limitations, as an argument to the ANY or ALL built-in functions.

---

<b>IBM1733I S</b>	<b>Concatenate operands must have computational type.</b>
-------------------	---

---

### Explanation

Only expressions having string or numeric type may be concatenated.

---

<b>IBM1734I S</b>	<b>Operand in a prefix expression is not computational.</b>
-------------------	---

---

### Explanation

The prefix operators (plus, minus, and logical not) may be applied only to expressions having string or numeric type.

---

<b>IBM1735I S</b>	<b>AREA variables may not be compared.</b>
-------------------	--

---

### Explanation

No relational operations are defined for AREA variables.

---

<b>IBM1736I S</b>	<b>Comparison of <i>source type</i> to <i>target type</i> is invalid.</b>
-------------------	---

---

### Explanation

Computational types can be compared only with other computational types, and non-computational types can be compared only with like non-computational types.

---

<b>IBM1737I S</b>	<b>Comparison of ENTRY to <i>target type</i> is invalid. If the ENTRY should be invoked, an argument list must be provided.</b>
-------------------	---

---

### Explanation

ENTRYS can be compared only with other ENTRYS. If the ENTRY is a function which should be invoked, an argument list, even if it consists only of a left and right parenthesis, must be provided.

---

<b>IBM1738I S</b>	<b>Comparison of <i>source type</i> to ENTRY is invalid. If the ENTRY should be invoked, an argument list must be provided.</b>
-------------------	---

---

### Explanation

ENTRYS can be compared only with other ENTRYS. If the ENTRY is a function which should be invoked, an argument list, even if it consists only of a left and right parenthesis, must be provided.

---

<b>IBM1739I S</b>	<b>TASK variables may not be compared.</b>
-------------------	--

---

### Explanation

No relational operations are defined for TASK variables.

---

<b>IBM1740I S</b>	<b>Comparison of an OFFSET to a POINTER is invalid since the OFFSET comparand is not an OFFSET variable declared with an AREA qualifier.</b>
-------------------	--

---

### Explanation

An OFFSET can be compared with a POINTER as long as the OFFSET can be converted to a POINTER. This requires that the OFFSET is declared with an AREA qualifier.

---

**IBM1741I S**      **Operands in comparison have differing strong types.**

### Explanation

Comparisons of strongly-typed variables are invalid unless both have the same type.

```
dcl hp   handle point;
dcl hr   handle rectangle;

if hp = hr then
    ...
```

---

**IBM1742I S**      **Compared ORDINALs must have the same ORDINAL type.**

### Explanation

ORDINALs cannot be compared with other ORDINALs having a different ORDINAL type.

---

**IBM1743I S**      **Source and target in assignment have differing strong types.**

### Explanation

Assignments of strongly-typed variables are invalid unless both have the same type.

---

**IBM1744I S**      **Conversion of ORDINALs is invalid unless both have the same ORDINAL type.**

### Explanation

ORDINALs cannot be assigned to other ORDINALs having different ORDINAL type.

---

**IBM1745I S**      **In a function that returns a strong type, the type in any RETURN expression must be the same as that returned by the function.**

### Explanation

For instance, in a function that returns a typed structure, any RETURN expression must have the same structure type.

---

**IBM1746I S**      **VALUE, VALUelist, VALUERANGE, and STATIC INITIAL expressions must be constant.**

### Explanation

These expressions must be reducible to a constant at compile-time.

```
dcl a fixed bin static nonassignable
init(0);
dcl m fixed bin value( a );
dcl n fixed bin static init( a );
```

---

**IBM1747I S**      **Function cannot be used before the function's descriptor list has been scanned.**

### Explanation

This is a compiler restriction. Reorder the declarations and blocks in your program. For example, the following declarations should be in reverse order.

```
dcl a char( csize( x, y ) );
dcl csize entry( char(2), fixed bin )
    returns( fixed bin );
```

---

**IBM1748I S**      **Extents of automatic variables must not depend on the extents of automatic variables declared later in the same block.**

### Explanation

Reorder the declarations in your program. For example, the following declarations should be in reverse order.

```
dcl a char( length(b) ) auto;
dcl b char( 10 ) auto;
```

---

**IBM1749I S**      **VALUE and INITIAL expressions must be scalars.**

### Explanation

Aggregate expressions are not valid as INITIAL and VALUE expressions.

---

**IBM1750I S**      **INITIAL attribute is invalid for the STATIC LABEL variable *variable-name* since it has the MEMBER attribute.**

### Explanation

The INITIAL attribute is supported for a STATIC LABEL variable only if the variable is a scalar or an array of scalars.

---

**IBM1751I S**      **INITIAL attribute is valid for the STATIC ENTRY variable *variable-***

**name only if it has the LIMITED attribute.**

## Explanation

ENTRY variables that don't have the LIMITED attribute require block activation information, and hence they cannot be initialized at compile-time.

---

**IBM1752I S**      **Argument number *argument number* to *BUILTIN* name built-in function must be a one-dimensional array of FIXED BIN(31,0).**

## Explanation

The named argument must be a one-dimensional array of DAYS values, that is, of REAL FIXED BIN(31,0) values.

---

**IBM1753I S**      **INITIAL attribute is invalid for the STATIC FORMAT variable *variable-name*.**

## Explanation

FORMAT variables require block activation information, and hence they cannot be initialized at compile-time. If the variable were not a member of a structure, the storage class would be changed to AUTOMATIC and an error message would be issued instead.

---

**IBM1754I S**      **An asterisk iteration factor can be applied only to the last expression in the INITIAL item list for *variable-name*.**

## Explanation

Since an asterisk iteration factor completes the initialization of a variable, it cannot be followed by more initial values.

```
      dcl a(10)  fixed bin init( 1, 2, (*) 0,
8 );
```

---

**IBM1755I S**      **An asterisk iteration factor cannot be used in the nested INITIAL item list for *variable-name*.**

## Explanation

An asterisk iteration can be used only in a non-nested INITIAL item list. The following example is invalid.

```
      dcl a(20) fixed bin init( (2) ( 1, (*)
2 ) );
```

---

**IBM1756I S**      **The scalar variable *variable-name* has an INITIAL list with more than one item.**

## Explanation

Only arrays can have an INITIAL list with more than one element.

```
      dcl a  fixed bin init( 1, 2 );
```

---

**IBM1757I S**      **LABEL constant in STATIC INITIAL for the variable *variable-name* must be in the same block as the LABEL being initialized.**

## Explanation

Change the storage class to AUTOMATIC.

```
      lx;;
      subproc: proc;
          dcl la  static label init( lx );
      end;
```

---

**IBM1758I S**      **Only one element in the STATIC UNION *variable-name* may have the INITIAL attribute.**

## Explanation

If more than one element in a STATIC UNION had an INITIAL value, it would not be clear which should take precedence.

```
      dcl
        1 a union static,
        2 b  fixed bin(31) init( 17 ),
        2 c  fixed bin(15) init( 19 );
```

---

**IBM1759I S**      **Non-null INITIAL values are not supported for the STATIC NONCONNECTED array *variable-name* since it has the attributes UNALIGNED BIT.**

## Explanation

The only supported INITIAL values for a STATIC UNALIGNED BIT variable with inherited dimensions are bit strings equal to "b".

```
dc1
 1 a(10,2) static,
 2 b1 bit(1) init( (20) '1'b ),
 2 b2 bit(1) init( (20) '0'b );
```

---

**IBM1760I S**      **LABEL constant in the STATIC INITIAL list for *variable-name* must not be an element of a LABEL CONSTANT array.**

## Explanation

Replace the subscripted LABEL with an unsubscripted one or change the storage class to AUTOMATIC.

```
lx(1);
lx(2);

dc1 la(2) static label init( lx(2),
lx(1) );
```

---

**IBM1761I S**      **ENTRY reference in INITIAL clause for the STATIC ENTRY variable *variable-name* must not be FETCHABLE.**

## Explanation

The variable y in DCL x ENTRY LIMITED INIT(y) must not be FETCHABLE; y must not be used in a FETCH or RELEASE statement, and y must not have the OPTIONS(FETCHABLE) attribute.

---

**IBM1762I S**      **INITIAL iteration factor must have computational type.**

## Explanation

Iteration factors in INITIAL lists must have numeric or string types.

---

**IBM1763I S**      **INITIAL iteration factor must be a scalar.**

## Explanation

An iteration factor in an INITIAL list must not be an array, structure, or union.

---

**IBM1764I S**      **The BYVALUE attribute is invalid for strings of nonconstant length.**

## Explanation

Strings with nonconstant length must be passed and received by address.

```
a: proc( x );
  dc1 x char(*) byvalue;
```

---

**IBM1765I S**      **Length of string with the VALUE attribute must be a constant or an asterisk.**

## Explanation

Named strings must have a constant length or a length determined from their VALUE.

```
dc1 a fixed bin automatic;
dc1 s char(a) value('variable length');
```

---

**IBM1766I S**      **VALUE for *variable-name* must be evaluated before its first use.**

## Explanation

Named constants must be evaluated before they are used. Reorder the declarations so that each named constant is declared before its first use.

```
dc1 a char(n) static init( 'tooSoon' );
dc1 n fixed bin value( 7 );
```

---

**IBM1767I S**      **Control variable in DO statement must not be a named constant.**

## Explanation

Named constants may not be used as control variables in DO loops.

```
dc1 n fixed bin value( 7 );

do n = 1 to 5;
```

---

**IBM1768I S**      **Control variable in DO statement must have VARIABLE attribute.**

## Explanation

Constants may not be used as control variables in DO loops.

```

dcl ex external entry, (ev1, ev2) entry;

do ex = ev1, ev2;

```

**IBM1769I S**      **Control variable has type POINTER, but TO expression does not.**

### Explanation

If the control variable in a DO loop has POINTER type, the TO expression must have POINTER type. Implicit conversion from OFFSET to POINTER is not supported in this context.

**IBM1770I S**      **Control variable in loop with TO clause must have computational or locator type.**

### Explanation

In a DO loop with a TO clause, the control variable must have a type that allows a comparison of less than and greater than. This is possible only for computational and locator types.

**IBM1771I S**      **The *variable name* built-in function may be used as a pseudovalue in a DO-loop only if the length of the pseudovalue reference is known at compile time.**

### Explanation

SUBSTR and UNSPEC may be used as pseudovariables in DO-loops only if their derived length is known at compile time.

**IBM1772I S**      **Source in DO loop initialization must be scalar.**

### Explanation

In a DO loop of the form DO a = b TO c, b must be a scalar.

**IBM1773I S**      **Control variable in DO statement must be a scalar.**

### Explanation

In a DO loop of the form DO x = .., x must be a scalar.

**IBM1774I S**      **Compiler restriction: control variable in DO statement must not be a BASED or CONTROLLED string or area that has non-constant extent.**

### Explanation

In a DO loop of the form DO x = .., if x is a string or an area, then it must have constant size or must be static, automatic, or defined.

**IBM1775I S**      **BY expression must have computational type.**

### Explanation

The expression in the BY clause of a DO loop must have a string or numeric type. It cannot have a locator type because it must be comparable to zero.

**IBM1776I S**      **BY expression must not be COMPLEX.**

### Explanation

The expression in the BY clause of a DO loop must be REAL.

```

dcl z cplx float;

do jx = 1 to 10 by z;

```

**IBM1777I S**      **TO expression must not be COMPLEX.**

### Explanation

The expression in the TO clause of a DO loop must be REAL

```

dcl z cplx float;

do jx = 1 to z;

```

**IBM1778I S**      **Control variable in loop with TO clause must not be COMPLEX.**

### Explanation

In a DO loop with a TO clause, the control variable must have a type that allows a comparison of less than and greater than. This is possible for numeric types only if the numeric type is REAL.

**IBM1779I S**      **TO expression must have computational type.**

### Explanation

The expression in the TO clause of a DO loop must have a string or numeric type.



---

**IBM1780I S**      **SIGNAL ANYCONDITION is invalid.**

### Explanation

ON ANYCONDITION may be used to trap conditions not otherwise trapped, but ANYCONDITION may not be signalled.

---

**IBM1781I S**      **And, or and exclusive-or of source type and target type is invalid.**

### Explanation

Bitwise operands must have a computational type.

---

**IBM1782I S**      **And, or and exclusive-or of source type and target type is invalid. If an ENTRY should be invoked, an argument list must be provided.**

### Explanation

An ENTRY cannot be used as a bitwise operand. If the ENTRY is a function which should be invoked, an argument list, even if it consists only of a left and right parenthesis, must be provided.

---

**IBM1783I S**      **BASED variable without an implicit qualifier must be explicitly qualified.**

### Explanation

A variable declared as BASED instead of as BASED( reference ) must always be explicitly qualified. This is necessary even when the variable is an argument to built-in functions such as STORAGE.

---

**IBM1784I S**      **The ENTRY variable-name may not be used as a locator qualifier since it does not have the RETURNS attribute.**

### Explanation

Functions, but not subprocedures, can be used as locator qualifiers (and then only if they return a locator).

---

**IBM1785I S**      **The variable variable-name is used as a locator qualifier, but it is not a scalar.**

### Explanation

Only scalars can be used as locator qualifiers.

---

**IBM1786I S**      **BUILTIN name built-in function may not be used as a locator qualifier.**

### Explanation

The named built-in function cannot be used as a locator qualifier since it does not return a POINTER.

---

**IBM1787I S**      **The ENTRY variable-name may not be used as a locator qualifier.**

### Explanation

x(...)->y is invalid unless x returns a POINTER or an OFFSET declared with a qualifying AREA.

---

**IBM1789I S**      **The qualifier variable-name does not have locator type.**

### Explanation

Only POINTERS and OFFSETs declared with a qualifying AREA can be used as locator qualifiers.

---

**IBM1790I S**      **Locator qualification is invalid for variable-name.**

### Explanation

Locator qualification is valid only for BASED variables.

---

**IBM1791I S**      **The locator qualified reference reference name is ambiguous.**

### Explanation

All references must be unambiguous.

---

**IBM1792I S**      **The locator qualified reference reference name is unknown.**

### Explanation

Locator qualified references must be explicitly declared. BASED variables may not be implicitly declared.

---

**IBM1793I S**      **The variable name built-in function may not be used as a pseudovalue in a DO-loop.**

### Explanation

Only IMAG, REAL, SUBSTR and UNSPEC may be used as pseudovariables in DO loops.

---

**IBM1794I S**      **Too many implicit locators are needed to resolve the qualification for a variable. Variable may be based on itself.**

## Explanation

An implicitly qualified variable must require no more than 15 qualifiers to be completely qualified. If it requires more, this may indicate its qualifiers are too interdependent.

```
decl a pointer based(b);  
decl b pointer based(a);  
a = null();
```

---

**IBM1795I S**      **The OFFSET variable *variable-name* may not be used as a locator qualifier since it was not declared with an AREA specification.**

## Explanation

An OFFSET variable can be used as a locator qualifier only if it can be converted to a pointer value. This requires that the offset be declared with an AREA qualification.

---

**IBM1796I S**      **Qualifier must be a scalar.**

## Explanation

Arrays, structures, and unions may not be used as locator qualifiers.

---

**IBM1797I S**      **BASED variables may not contain extents with nonconstant values if other extents use the REFER option.**

## Explanation

The REFER option cannot be used in a BASED variable which also has an extent that is set by a non-constant expression.

---

**IBM1798I S**      **Invalid scale factor in PICTURE specification.**

## Explanation

The picture character F specifies a picture scaling factor for fixed-point decimal numbers. The number of digits following the V picture character, minus the integer specified with F, must be between -128 and 127.

---

**IBM1799I S**      **Invalid characters in PICTURE specification.**

## Explanation

The picture specification can contain only A X 9 for the Character Data, and only 9 V Z \*, . / B S + - \$ CR

DB Y K E F < > for the Numeric Data. The characters between the insertion characters < > are not affected by this rule.

---

**IBM1800I S**      **Invalid characters in the F scaling factor.**

## Explanation

The picture character F specifies a picture scaling factor for fixed-point decimal numbers. The format is F(n) where n can be any signed integer between -128 and 127 inclusively.

---

**IBM1801I S**      **A character PICTURE string may have only A, X, or 9.**

## Explanation

The picture specification can contain only A, X, or 9 for the character data. Other characters are not permitted.

---

**IBM1802I S**      **Invalid precision in PICTURE fixed decimal precision.**

## Explanation

The number of digits for the precision field within a numeric data picture specification must be between one and the maximum allowed by the LIMITS(FIXEDDEC) option.

---

**IBM1803I S**      **Too many T, I, or R appear in the PICTURE specification.**

## Explanation

T, I, or R are the overpunched characters in the picture specification. Only one overpunched character can appear in the specification for a fixed point number. A floating-point specification can contain two (One in the mantissa field and one in the exponent field).

---

**IBM1804I S**      **PICTURE specifications in C-format items must be arithmetic.**

## Explanation

Character PICTURE specifications are not permitted in C-format items.

---

**IBM1805I S**      **Precision in numeric PICTURE must NOT be less than 1.**

## Explanation

The precision field within a numeric data picture specification must contain at least one digit.

---

**IBM1806I S**      **The precision in FIXED DECIMAL PICTURE is too big.**

## Explanation

The precision in the fixed decimal picture specification must not exceed that specified in the LIMITS compiler option.

---

**IBM1807I S      Precision in FLOAT DECIMAL  
PICTURE is too big.**

---

## Explanation

The precision in the float decimal picture specification is limited by the hardware to 18 digits.

---

**IBM1808I S      PICTURE string is empty.**

---

## Explanation

Null picture strings ("P) are invalid.

---

**IBM1809I S      Exponent in FLOAT PICTURE is too  
long. Exponent will be truncated  
to fit.**

---

## Explanation

The number of digits in the exponent of the float decimal picture specification is limited to 4.

---

**IBM1810I S      Exponent in FLOAT PICTURE has  
no digits.**

---

## Explanation

The exponent in the float decimal picture specification is missing. It must be entered even if it is zero.

---

**IBM1811I S      Exponent in PICTURE  
specification cannot contain V.**

---

## Explanation

V specifies an implicit decimal point. Therefore, it is not permitted in the exponent field.

---

**IBM1812I S      FLOAT PICTURE cannot contain  
CR, DB or F.**

---

## Explanation

Credit (CR), debit (DB), and scale factor (F) are only allowed in the FIXED picture specification.

---

**IBM1813I S      PICTURE specification is too long.  
Excess characters are truncated  
on the right.**

---

## Explanation

The compiler restrictions on the length of the picture specification are:

```
fixed decimal: 254
float decimal: 253
character data: 511
```

---

**IBM1814I S      PICTURE string has an invalid  
floating insertion character string.**

---

## Explanation

The floating insertion string is delimited by < >. Floating is done by the > character. The string can contain any character with one exception: the delimiters themselves. In order to include the characters < and > in the floating insertion string, these angle brackets must be used in an escaped format. << must be used to specify the character <, and <> must be used to specify the character >. So, for example, <aaa<<bbb<>ccc> denotes the insertion string aaa<bbb>ccc.

---

**IBM1815I S      BUILTIN name is a built-in  
subroutine. It should be used only  
in CALL statements and not as a  
function.**

---

## Explanation

Built-in subroutines cannot be used as functions - they can only be called. For instance, the following code is invalid

```
dcl pliretc builtin;
rc = pliretc( 16 );
```

---

**IBM1816I S      keyword item variable name is not  
computational.**

---

## Explanation

The expression must be arithmetic or string.

```
dcl x label variable;
put list( x );
```

---

**IBM1817I S      The KEYTO reference must be of  
type CHARACTER or GRAPHIC.**

---

## Explanation

The KEYTO reference should have the data type character or graphic. The reference can also be a variable with a non-numeric picture string specification.

---

**IBM1818I S**      ***I/O-option conflicts with previous options on the I/O-stmt statement.***

---

### Explanation

An option on the I/O statement conflicts with prior options.

```
open file(f1) input output;
read file(f) into(x) set(p);
```

---

**IBM1819I S**      ***The I/O-option option is multiply specified on the I/O-stmt statement.***

---

### Explanation

Each option may be specified only once.

```
read file(f1) ignore(1) ignore(2);
```

---

**IBM1820I S**      ***Mandatory I/O-option option not specified on the I/O-stmt statement.***

---

### Explanation

A required statement element has not been specified.

```
open output;
write file(x);
```

---

**IBM1821I S**      ***Reference for from-into-option is an invalid element or aggregate type.***

---

### Explanation

An invalid scalar or aggregate reference has been specified for the FROM or INTO clause in a record I/O statement. The example below will cause this message to be issued.

```
dcl f1 file;
read file(f1) into(f1);
```

---

**IBM1822I S**      ***The keyword-type expression must be computational.***

---

### Explanation

The expression in a KEY or KEYFROM record I/O statement option must be computational data.

---

**IBM1823I S**      ***SET reference must have locator type.***

---

### Explanation

In the SET clause of an ALLOCATE or LOCATE statement, the reference must have the type POINTER or OFFSET.

---

**IBM1824I S**      ***keyword expression must be scalar.***

---

### Explanation

The expression in the named keyword clause must be scalar. This keyword clause could be an IF, UNTIL, WHILE, WHEN, KEY, KEYFROM or KEYTO clause.

```
dcl f1 file;
dcl x char(10);
dcl z(10) char(10);
read file(f1) into(x) key(z);
```

---

**IBM1825I S**      ***The reference in the keyword clause cannot be a built-in function reference.***

---

### Explanation

The references for the KEYTO, FROM, INTO, and SET record I/O options cannot be built-in functions. The example below will cause this message to be issued.

```
dcl f1 file;
dcl x char(10);
read file(f1) into(hex(x));
```

---

**IBM1826I S**      ***The reference in the keyword clause cannot be a function invocation.***

---

### Explanation

The references for the KEYTO, FROM, INTO, and SET record I/O options cannot be entry.

---

**IBM1827I S**      ***The reference in the keyword clause must have CHARACTER type.***

---

### Explanation

The specified reference is invalid. It must be of type character. The example below will cause this message to be issued.

```
dcl p pointer;
display ('what is your name?') reply(p);
```

---

**IBM1828I S**      ***The reference in the keyword clause must be a scalar variable.***

---

## Explanation

The specified reference is invalid. It must be a scalar. The example below will cause this message to be issued.

```
dcl z(10) char(10);
display ('what is your name?') reply(z);
```

---

**IBM1829I S**      **The attributes of the argument in the *clause* clause conflict with its usage.**

## Explanation

The declared attributes conflict with their use in the statement.

```
dcl f file stream;
read file(f) into(x);
```

---

**IBM1830I S**      ***keyword* expression is not computational.**

## Explanation

The expression must be arithmetic or string.

```
dcl p pointer;
put list( ptradd(p,2) );
```

---

**IBM1831I S**      **The LOCATE reference *variable-name* is not implicitly qualified and is invalid without a SET clause.**

## Explanation

Provide a SET clause in the LOCATE statement.

```
dcl f file;
dcl x char(10) based;
locate x file(f1);
```

---

**IBM1832I S**      **SET reference must have POINTER type.**

## Explanation

The reference in the SET clause of a FETCH statement must have the POINTER type. OFFSET types are not supported in this context.

---

**IBM1833I S**      **The aggregate reference in the *from-into clause* clause must be CONNECTED.**

## Explanation

The specified reference in the FROM or INTO record I/O option is invalid. The reference must be connected. The example below will cause this message to be issued.

```
dcl f1 file;
dcl 1 a(3),
    2 b(4) char(4),
    2 c(4) char(4);

read file(f1) into(b);
```

---

**IBM1834I S**      **The expression in IGNORE must be computational.**

## Explanation

The specified expression in the IGNORE option of the READ statement must be computational. The example below will cause this message to be issued.

```
dcl a area;

read file(f1) ignore(a);
```

---

**IBM1835I S**      **The LOCATE reference *variable-name* is not a level 1 BASED variable.**

## Explanation

The LOCATE reference may not be a structure member and must have the storage attribute BASED.

---

**IBM1836I S**      **INITIAL attribute is invalid for structures.**

## Explanation

The INITIAL attribute is valid only for scalars and arrays of scalars.

---

**IBM1837I S**      **The reference in the *keyword* clause cannot be a named constant.**

## Explanation

The specified reference is invalid. It cannot be a named constant. The example below will cause this message to be issued.

```
dcl f1 file;
dcl x char(2);
dcl val fixed bin(15) value(4);

read file(f1) into(x) keyto(val);
```

---

**IBM1838I S**      **The attributes of *argument-number* conflict with its usage in data directed I/O.**

### Explanation

Only AUTOMATIC, CONTROLLED, PARAMETER, STATIC and implicitly qualified BASED variables are supported in data directed I/O.

```
dcl q based;  
put data(q);
```

---

**IBM1839I S**      **DATA-directed I/O does not support references with locators.**

### Explanation

Use a temporary or use LIST- or EDIT directed I/O.

---

**IBM1840I S**      **Subscripted references are not allowed in GET DATA.**

### Explanation

Use a temporary or use GET LIST or GET EDIT.

---

**IBM1841I S**      **The first argument in the *keyword-format* item is invalid.**

### Explanation

The format argument is outside the valid range.

```
put edit('hi') (a( -1) );
```

---

**IBM1842I S**      **The field width specified in the *keyword-format* item is too small for complete input or output of the data item.**

### Explanation

The width specified is too small for complete processing.

```
put edit(10190) (f(3));
```

---

**IBM1843I S**      **The fractional digits specified in the *keyword-format* item is invalid.**

### Explanation

The fractional number of digits must be less than or equal to the field width and non-negative.

---

**IBM1844I S**      **The argument in the R-format item is not a format constant or format variable.**

### Explanation

The argument to the R-format item must be either a format constant or a format variable.

---

**IBM1845I S**      **The significant digits specified in E-format item is invalid.**

### Explanation

The number of significant digits must be greater than or equal to the number of fractional digits, less than or equal to the field width and non-negative.

---

**IBM1846I S**      **The *format-item* format item is invalid with GET/PUT STRING.**

### Explanation

G, L, PAGE, LINE, SKIP, and COLUMN format items may not be used in GET/PUT EDIT statements using the STRING option.

---

**IBM1847I S**      **GOTO target is inside a (different) DO loop.**

### Explanation

The target of a GOTO cannot be inside a DO loop unless the GOTO itself is in the same DO loop.

---

**IBM1848I S**      **The INCLUDE file for *include-stmt-arg* could not be found.**

### Explanation

The INCLUDE file could not be found or opened.

---

**IBM1849I S**      **Under CMPAT(V1), bounds must not be greater than 32767.**

### Explanation

Under CMPAT(V1), bounds must be between -32768 and 32767 inclusive. To use bounds outside this range, specify a different CMPAT option.

---

**IBM1850I S**      **Under CMPAT(V1), bounds must not be less than -32768.**

### Explanation

Under CMPAT(V1), bounds must be between -32768 and 32767 inclusive. To use bounds outside this range, specify a different CMPAT option.

---

**IBM1851I S**      **The INCLUDE file *include-file-name* could not be opened.**

### Explanation

An unexpected error occurred while trying to open an include source file.

---

**IBM1852I S**      **The preprocessor *preprocessor* is not known to the compiler.**

### Explanation

A preprocessor specified in the PP compiler option is unknown.

---

**IBM1853I S**      **Variable in *statement* statement must be a FETCHABLE entry constant.**

### Explanation

The argument in the FETCH and RELEASE statements must be a FETCHABLE entry constant.

---

**IBM1854I S**      **Fetch of the *PP name* preprocessor failed with ONCODE= *oncode*.**

### Explanation

The compiler's attempt to load the named preprocessor failed.

---

**IBM1855I S**      **Preprocessor *PP name* terminated abnormally with ONCODE= *oncode-value*.**

### Explanation

A terminating error was detected in a preprocessor invoked by the compiler.

---

**IBM1856I S**      **Fetch of the user exit initialization routine failed with ONCODE= *oncode*.**

### Explanation

The compiler was unable to load the user exit.

---

**IBM1857I S**      **User exit routine terminated abnormally with ONCODE= *oncode-value*.**

### Explanation

The compiler detected a terminating error in the user exit.

---

**IBM1858I S**      **Compilation aborted by user exit.**

### Explanation

The user exit aborted the compilation by setting the return code to 16.

---

**IBM1859I S**      **The first statement must be a PROCEDURE or PACKAGE statement.**

### Explanation

All other statements must be enclosed in a PACKAGE or PROCEDURE statement.

---

**IBM1860I S**      **PACKAGE statement must be the first statement in the program.**

### Explanation

PACKAGE statements cannot follow any other statements in the program.

---

**IBM1861I S**      **All statements other than DECLARE, DEFAULT and PROCEDURE statements must be contained inside a PROCEDURE.**

### Explanation

This message can occur, for instance, if the first PROCEDURE statement is invalid or if a PROCEDURE contains too many END statements.

---

**IBM1862I S**      **Statements are nested too deep.**

### Explanation

The nesting of PROCEDURE, DO, SELECT and similar statements is greater than that supported by the compiler. Rewrite the program so that it is less complicated.

---

**IBM1863I S**      **Variables declared in a PACKAGE outside of any PROCEDURE must have the storage class STATIC, BASED or CONTROLLED or must be DEFINED on STATIC.**

### Explanation

AUTOMATIC variables must be declared inside a PROCEDURE, and DEFINED variables declared outside a PROCEDURE must be defined on STATIC.

---

**IBM1864I S**      **The *function name* built-in function is not supported.**

### Explanation

Support for the indicated built-in function has been discontinued.

---

<b>IBM1865I S</b>	<b>The only <b>BASED</b> variables supported in data-directed i/o are those that have constant extents and that are implicitly qualified by simple variables.</b>
-------------------	---

---

### Explanation

The variable implicitly qualifying the BASED variable must be a scalar that is not part of an array, structure or union, and it must be a POINTER with either the AUTOMATIC or STATIC storage attribute.

---

<b>IBM1866I S</b>	<b>The <i>keyword</i> statement is not supported.</b>
-------------------	---

---

### Explanation

Support for the indicated statement has been discontinued.

---

<b>IBM1867I S</b>	<b>The pseudovariable <i>variable name</i> is not supported.</b>
-------------------	--

---

### Explanation

Support for the indicated pseudovariable has been discontinued.

---

<b>IBM1868I S</b>	<b>Invalid use of <b>iSUB</b>.</b>
-------------------	------------------------------------

---

### Explanation

iSUB references are permitted only in DEFINED clauses.

---

<b>IBM1869I S</b>	<b>ALLOCATE with attribute lists is not supported.</b>
-------------------	--

---

### Explanation

For example, neither of the following are supported.

```
allocate x(5);
allocate y char(10);
```

---

<b>IBM1870I S</b>	<b>ON statement cannot specify both <b>SYSTEM</b> and an <b>ON-unit</b>.</b>
-------------------	--

---

### Explanation

If the SYSTEM action is specified in an ON statement, an ON-unit may not be specified as well.

```
on error system stop;
```

---

<b>IBM1871I S</b>	<b>The reference in the <b>CONDITION</b> condition must have type <b>CONDITION</b>.</b>
-------------------	---

---

### Explanation

x in CONDITION(x) refers to a variable that does not have the type CONDITION.

---

<b>IBM1872I S</b>	<b>The reference in the <i>condition-name</i> condition must have type <b>FILE</b>.</b>
-------------------	---

---

### Explanation

The reference in the named FILE condition does not have the type FILE.

---

<b>IBM1873I S</b>	<b>Nesting of <b>DO</b> statements exceeds the maximum.</b>
-------------------	---

---

### Explanation

DO statements can be nested only 50 deep. Simplify the program.

---

<b>IBM1874I S</b>	<b>Nesting of <b>IF</b> statements exceeds the maximum.</b>
-------------------	---

---

### Explanation

IF statements can be nested only 50 deep. Simplify the program.

---

<b>IBM1875I S</b>	<b>Nesting of <b>SELECT</b> statements exceeds the maximum.</b>
-------------------	---

---

### Explanation

SELECT statements can be nested only 50 deep. Simplify the program.

---

<b>IBM1876I S</b>	<b>Nesting of blocks exceeds the maximum.</b>
-------------------	---

---

### Explanation

Blocks may be nested only 30 deep.

---

<b>IBM1878I S</b>	<b>The reference in the <b>EVENT</b> clause must have type <b>EVENT</b>.</b>
-------------------	--

---

### Explanation

A reference of any other type is invalid and is invalid.

---

<b>IBM1879I S</b>	<b>The reference in the <b>TASK</b> clause must have type <b>TASK</b>.</b>
-------------------	--

---



## Explanation

A reference of any other type is invalid and is invalid.

**IBM1880I S**      **Reference must have FILE type.**

## Explanation

A file variable or constant is required.

```
dcl x format variable;  
open file(x);
```

**IBM1881I S**      **The reference *reference name* is ambiguous.**

## Explanation

Enough qualification must be provided to make any reference unique.

**IBM1882I S**      **The ALLOCATE reference *variable-name* is not a level 1 BASED or CONTROLLED variable.**

## Explanation

References in ALLOCATE statements must be level-1 variable names, and those variables must have the BASED or CONTROLLED attributes.

**IBM1883I S**      **The ALLOCATE reference *variable-name* is not implicitly qualified and is invalid without a SET clause.**

## Explanation

Provide a SET clause in the ALLOCATE statement.

```
dcl a based;  
allocate a;
```

**IBM1884I S**      **The reference *variable-name* in the GENERIC attribute list is not a scalar ENTRY reference.**

## Explanation

A reference of any other type is invalid.

**IBM1885I S**      **IN option reference must have AREA type.**

## Explanation

A reference of any other type is invalid.

**IBM1886I S**      **The REFER object *reference name* is ambiguous.**

## Explanation

Provide enough qualification to make the name unique.

```
dcl  
  1 a based,  
    2 b1,  
      3 c          bit(8) aligned,  
      3 d          char(10),  
    2 b2,  
      3 c          bit(8) aligned,  
      3 d          char(10),  
    2 e( n refer(c)) char(10);
```

**IBM1887I S**      **The REFER object *reference name* must be an element of the same structure where it is used, and must precede its first usage in that structure.**

## Explanation

The named REFER object cannot be declared in another structure or in the same structure, but after its first usage.

**IBM1888I S**      **The REFER object *reference name* must have computational type.**

## Explanation

It must be possible to convert the REFER object safely to and from REAL FIXED BIN(31,0).

```
dcl  
  1 a based,  
    2 b,  
      3 c          pointer,  
      3 d          char(10),  
    2 e( n refer(c)) char(10);
```

**IBM1889I S**      **The REFER object *reference name* must be a scalar.**

## Explanation

The REFER object may not have any dimensions in its declaration and neither may any of its parents.

```
dcl  
  1 a based,  
    2 b(8),  
      3 c          fixed bin,  
      3 d          char(10),
```

```
2 e( n refer(c)) char(10);
```

**IBM1890I S**      **The REFER object *reference name* must precede the first level-2 element containing a REFER.**

## Explanation

Reorder the elements in the declaration so that all REFER objects precede the first level-2 element containing a REFER.

```

dcl
 1 a based,
 2 b      fixed bin,
 2 c      char( n refer(b) ),
 2 d      fixed bin,
 2 e      char( n refer(d) );

```

**IBM1891I S**      **REFER is not allowed on non-BASED variables.**

## Explanation

REFER can be used only in declarations of BASED variables.

**IBM1892I S**      **The REFER object *reference name* must have constant length.**

## Explanation

If a REFER object is a string, it must have constant length.

**IBM1893I S**      **REFER is allowed only on members of structures and unions.**

## Explanation

REFER cannot be used only in declarations of scalars or arrays of scalars.

**IBM1894I S**      **REINIT references must not be subscripted.**

## Explanation

In the statement REINIT x, x must not have any subscripts or arguments.

**IBM1895I S**      **Operations involving *OPTIONS(language-name)* routines are not supported if the DIRECTED option applies.**

## Explanation

If the DIRECTED(ASM) option is used, comparisons and assignments are not supported for ENTRYs declared with OPTIONS(ASM). Similarly, if the DIRECTED(COBOL) option is used, comparisons and assignments are not supported for ENTRYs declared with OPTIONS(COBOL).

**IBM1896I S**      ***OPTIONS(language-name)* is not supported for ENTRY VARIABLES if the DIRECTED option applies.**

## Explanation

If the DIRECTED(ASM) option is used, ENTRY VARIABLES may not be declared with OPTIONS(ASM). Similarly, if the DIRECTED(COBOL) option is used, ENTRY VARIABLES may not be declared with OPTIONS(COBOL).

**IBM1897I S**      **Simple defining is supported only for scalars, for structures with constant extents matching those in the base variable, and for arrays of such scalars and structures as long as the array is not based on a controlled variable.**

## Explanation

If simple defining is not intended, specify POSITION(1) to force string defining.

**IBM1898I S**      **The base reference in the DEFINED attribute cannot be a built-in or type function.**

## Explanation

You can define a variable only another user variable.

**IBM1899I S**      **The base variable in the DEFINED attribute cannot be BASED, DEFINED or CONSTANT.**

## Explanation

Convert the DEFINED and base variables into a UNION.

**IBM1900I S**      **Extents for DEFINED bit structures must be constant.**

## Explanation

All bounds and string lengths for DEFINED structures and unions consisting of bit strings must be constant.

**IBM1901I S**      **POSITION attribute is invalid without the DEFINED attribute.**

## Explanation

The POSITION attribute has no meaning without DEFINED attribute.

---

**IBM1902I S      The expression in the POSITION attribute must have computational type.**

---

## Explanation

The POSITION expression must have a numeric or string type.

---

**IBM1903I S      The expression in the POSITION attribute for bit string-overlay defining must be an integer constant.**

---

## Explanation

The compiler must be able to evaluate the expression to an integer constant when it scans the POSITION attribute.

---

**IBM1904I S      Variable following the *free clause* clause must be level 1 and either BASED or CONTROLLED.**

---

## Explanation

A variable that is either based or controlled should immediately follow the FREE keyword.

---

**IBM1905I S      *IN* or *SET* option invalid after the CONTROLLED variable in the ALLOCATE or FREE clause clause.**

---

## Explanation

An invalid option immediately follows a controlled variable in an ALLOCATE or FREE statement.

---

**IBM1906I S      The reference qualifying an OFFSET attribute must be a scalar AREA reference.**

---

## Explanation

Using the specified AREA reference to qualify an OFFSET variable is invalid. The reference must be scalar. The following example will issue this message.

```
dcl a(10) area;
dcl o      offset(a);
```

---

**IBM1907I S      Extents for CONTROLLED variables cannot be specified using asterisks or REFER.**

---

## Explanation

The extent specified for the controlled variable is invalid. The following example will emit this message.

```
dcl c(*) char(10) controlled;
```

---

**IBM1908I S      Extents for *attribute* variables cannot be specified using asterisks or REFER.**

---

## Explanation

Extents for AUTOMATIC and DEFINED variables must be specified by expressions.

---

**IBM1909I S      The *attribute* attribute conflicts with the *attribute* attribute.**

---

## Explanation

The named attributes, for example PARAMETER and INITIAL, are mutually exclusive.

---

**IBM1910I S      The attributes given in the declaration for *identifier* conflict with its use as a parameter.**

---

## Explanation

Parameters can have no storage attributes other than CONTROLLED. Parameters also cannot have any of the attributes BUILTIN, CONDITION, CONSTANT, EXTERNAL, and GENERIC.

---

**IBM1911I S      Repeated specifications of the unsubscripted statement label *character* are in error.**

---

## Explanation

All statement labels in any block must be unique.

---

**IBM1912I S      Indices specified for the LABEL *character* have already been specified.**

---

## Explanation

All statement labels in any block must be unique.

---

**IBM1913I S      ON-units may not be labeled. All such labels will be ignored.**

---

## Explanation

A BEGIN block or a statement associated with an ON clause may not have a label.

---

**IBM1914I S**      **GOTO target must be a LABEL reference.**

---

### Explanation

x in GOTO x must have type LABEL. x must not have type FORMAT.

---

**IBM1915I S**      **GOTO target must be a scalar.**

---

### Explanation

x in GOTO x must not be an array.

---

**IBM1916I S**      **The PROCEDURE/ENTRY *proc-name* has already been defined.**

---

### Explanation

Sister procedures must have different names.

```
a: proc;  
  b: proc;  
  end;  
  b: proc;  
  end;  
end;
```

---

**IBM1917I S**      **Program contains no valid source lines.**

---

### Explanation

The source contains either no statements or all statements that it contains are invalid.

---

**IBM1918I S**      **All the names in the ORDINAL *ordinal-name* have been previously declared.**

---

### Explanation

None of the names in an ORDINAL should have been declared elsewhere. If they are, perhaps the ORDINAL definition has been accidentally repeated.

---

**IBM1919I S**      **The EXTERNAL name *string* is specified for the differing names *name* and *name*.**

---

### Explanation

Each EXTERNAL name must be used only once. So, for example, the following declares would be illegal since the external name Z is specified for two different names X and Y.

```
decl X fixed bin(31) ext('Z');
```

```
decl Y fixed bin(31) ext('Z');
```

---

**IBM1920I S**      **FIXED BINARY constant contains too many digits.**

---

### Explanation

The maximum precision of FIXED BINARY constants is set by the FIXEDBIN suboption of the LIMITS compiler option.

---

**IBM1921I S**      **FIXED DECIMAL constant contains too many significant digits.**

---

### Explanation

The maximum precision of FIXED DECIMAL constants is set by the FIXEDDEC suboption of the LIMITS compiler option.

---

**IBM1922I S**      **Exponent in FLOAT BINARY constant contains more digits than the implementation maximum.**

---

### Explanation

The exponent in a FLOAT BINARY constant may contain no more than 5 digits.

---

**IBM1923I S**      **Mantissa in FLOAT BINARY constant contains more significant digits than the implementation maximum.**

---

### Explanation

The mantissa in a FLOAT BINARY constant may contain no more than 64 digits.

---

**IBM1924I S**      **Exponent in FLOAT DECIMAL constant contains more digits than the implementation maximum.**

---

### Explanation

The exponent in a FLOAT DECIMAL constant may contain no more than 4 digits.

---

**IBM1925I S**      **Mantissa in FLOAT DECIMAL constant contains more significant digits than the implementation maximum.**

---

### Explanation

The mantissa in a FLOAT DECIMAL constant may contain no more than maximum number of digits allowed on the platform.

---

**IBM1926I S**      **Constants must not exceed 8192 bytes.**

### Explanation

The number of bytes used to represent a constant in your program must not exceed 8192. This limit holds even for bit strings where the internal representation will consume only one-eighth the number of bytes as the external representation does.

---

**IBM1927I S**      **SIZE condition raised by attempt to convert *source-value* to *target-attributes***

### Explanation

The source value is not in the domain of the target.

```
dcl x fixed bin(15);  
x = 172900;
```

---

**IBM1928I S**      **ERROR raised while building CEEUOPT from PLIXOPT.**

### Explanation

The ERROR condition was while the compiler was trying to build CEEUOPT from PLIXOPT. There may be an error in the LE APIs used by the compiler. Contact IBM service.

---

**IBM1929I S**      **Unable to open file *file-name* in routine *proc-name(line-number)*.**

### Explanation

The compiler was unable to open the named temporary file used to communicate with the code generation module. Check the value of the TMP environment variable.

---

**IBM1930I S**      **Unable to write to file *file-name* . Disk may be full.**

### Explanation

The compiler was unable to write to a temporary file used to communicate with the code generation module. The disk to which the TMP environment variable points may be full.

---

**IBM1932I S**      **Unable to close file *file-name* in routine *proc-name(line-number)*.**

### Explanation

The compiler was unable to close the named temporary file used to communicate with the code generation module. Check the value of the TMP environment variable.

---

**IBM1933I S**      **Unable to open temporary files because the path and filename are too long.**

### Explanation

Shorten the name of the source file or the directory specified by the TMP variable.

---

**IBM1934I S**      **If a parameter is a structure with nonconstant extents, only matching structures are supported as arguments.**

### Explanation

Assign the structure to a temporary and pass the temporary, or omit the parameter description in the entry declaration.

---

**IBM1935I S**      **Structure expressions as arguments are not supported for undescribed parameters.**

### Explanation

Assign the structure to a temporary and pass the temporary, or describe the parameter in the entry declaration.

---

**IBM1936I S**      **Invocation of compiler backend ended abnormally.**

### Explanation

The back end of the compiler either could not be found or else it detected an error from which it could not recover. The latter problem can sometimes occur, on Intel, if your disk is short of free space and, on the z/Series, if your job's region size is not large enough. Otherwise, report the problem to IBM.

---

**IBM1937I S**      **Extents for parameters must be asterisks or restricted expressions with computational type.**

### Explanation

For parameters, each array bound, string length and AREA size must be specified either with an asterisk or with a restricted expression that has computational type.

---

**IBM1938I S**      **Message file *file name* not found.**

### Explanation

The message must be in the current directory or in one of the directories specified in the DPATH environment variable.

<b>IBM1939I S</b>	<b>Exponentiation operands must have computational type.</b>
-------------------	--

### Explanation

The operands in an exponentiation must have numeric or string type.

<b>IBM1940I S</b>	<i>note</i>
-------------------	-------------

### Explanation

This message is used by %NOTE statements with a return code of 12.

<b>IBM1941I U</b>	<i>note</i>
-------------------	-------------

### Explanation

This message is used by %NOTE statements with a return code of 16.

<b>IBM1942I S</b>	<b>The scale factor specified in <i>BUILTIN</i> name built-in function must be a restricted expression with integer type.</b>
-------------------	---

### Explanation

This applies to all the precision-handling built-in functions.

<b>IBM1943I S</b>	<b>The number of error messages allowed by the FLAG option has been exceeded.</b>
-------------------	---

### Explanation

Compilation will terminate when the number of messages has exceeded the limit set in the FLAG compiler option.

<b>IBM1944I S</b>	<b>The precision specified in <i>BUILTIN</i> name built-in function must be a restricted expression with integer type.</b>
-------------------	--

### Explanation

This applies to all the precision-handling built-in functions.

<b>IBM1945I S</b>	<b>Extents for <i>BASED</i> variable may not contain asterisks.</b>
-------------------	---

### Explanation

Extents in *BASED* variables must be either constants or specified with the *REFER* option.

<b>IBM1946I S</b>	<b>Reference must be an <i>AREA</i> variable.</b>
-------------------	---

### Explanation

The specified reference is invalid. An *AREA* variable is needed.

<b>IBM1947I S</b>	<b>The reference to the <i>GENERIC</i> variable <i>GENERIC</i> variable name cannot be resolved.</b>
-------------------	--

### Explanation

The argument list in a *GENERIC* reference must match one of the generic descriptors in one of that *GENERIC*'s *WHEN* clauses. If an *OTHERWISE* clause was specified, the argument list must have the same number of elements as the *OTHERWISE* entry reference.

<b>IBM1948I S</b>	<b><i>condition-name</i> condition with <i>ONCODE=oncode-value</i> raised while evaluating restricted expression.</b>
-------------------	---

### Explanation

Compile-time evaluation of a restricted expression raised a condition.

<pre>display( 1/0 );</pre>
----------------------------

<b>IBM1949I S</b>	<b>Parameter name <i>identifier</i> appears more than once in parameter list.</b>
-------------------	---

### Explanation

Each identifier in a parameter list must be unique.

<pre>a: proc( b, c, b );</pre>
--------------------------------

<b>IBM1951I S</b>	<b><i>storage class</i> variables must be named.</b>
-------------------	--

### Explanation

Variables with the *CONTROLLED* attribute must be named, and a variable with the *EXTERNAL* attribute may not have an \* instead of a name unless a name is given with the *EXTERNAL* attribute itself.

---

**IBM1952I S**      **INITIAL CALL cannot be used to initialize STATIC data.**

---

### Explanation

An INITIAL CALL must be evaluated at run-time; it can be used to initialize only non-STATIC data.

---

**IBM1953I S**      **The attributes of the EXTERNAL variable *variable name* do not match those in its previous declaration.**

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM1954I S**      **The base reference in the DEFINED attribute must be CONNECTED.**

---

### Explanation

Variables cannot be DEFINED on NONCONNECTED references.

---

**IBM1955I S**      **Repeated declarations of the EXTERNAL attribute *variable name* are not supported.**

---

### Explanation

EXTERNAL FILE constants and CONDITIONS may be declared only once in a compilation unit. Remove all but the outermost declare.

---

**IBM1956I S**      **ITERATE is valid only for iterative DO-groups.**

---

### Explanation

ITERATE is not valid inside type-I do groups.

---

**IBM1957I S**      **The WAIT event number specification must be computational.**

---

### Explanation

The expression representing the number of items to wait for in a WAIT statement is invalid. The expression must be of computational type. The following example will issue this message.

```
dcl e event;
dcl p pointer;
wait (e) (p);
```

---

**IBM1958I S**      **References in the WAIT statement must be of type EVENT.**

---

### Explanation

The event reference in the WAIT statement is invalid. It must be of type EVENT. The following example will issue this message.

```
dcl e entry;
wait (e);
```

---

**IBM1959I S**      **Invalid aggregate expression specified in WAIT statement.**

---

### Explanation

References in WAIT statements can be scalars. The only valid aggregate reference is a simple array of events. Structures, unions, and arrays of structures or unions would be flagged as errors.

---

**IBM1960I S**      ***type name* is not a type name.**

---

### Explanation

In a declare statement that specifies TYPE x, ORDINAL x, or HANDLE x, x must be a defined type.

---

**IBM1961I S**      **INITIAL values for *type type type type name* must be in increasing order.**

---

### Explanation

Any values specified in INITIAL clauses in an ORDINAL definition must be in strictly increasing order.

---

**IBM1962I S**      **INITIAL values for *type type type type name* must be less than 2G.**

---

### Explanation

ORDINAL values must fit in the range of a FIXED BIN(31) variable.

---

**IBM1963I S**      ***BUILTIN name* argument must have ORDINAL type.**

---

### Explanation

An expression contains the named built-in function with an argument that is not an ORDINAL. This message applies, for example, to the ORDINALNAME, ORDINALPRED and ORDINALSUCC built-in functions.

---

**IBM1964I S**      **The attributes derived from the PROCEDURE statement for the ENTRY constant *variable name* do**

---

not match those in its explicit declaration.

### Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM1965I S</b>	<b>There is more than one element named <i>reference name</i> in the class <i>structure name</i>.</b>
-------------------	---

---

### Explanation

All references must be unambiguous.

---

<b>IBM1966I S</b>	<b>There is no element named <i>reference name</i> in the class <i>structure name</i>.</b>
-------------------	--

---

### Explanation

HANDLE qualified references must be explicitly declared.

---

<b>IBM1967I S</b>	<b>The ENTRY <i>variable-name</i> may not be used as a handle since it does not have the RETURNS attribute.</b>
-------------------	---

---

### Explanation

Functions, but not subprocedures, can be used as handles (and then only if they return a handle).

---

<b>IBM1968I S</b>	<b>The ENTRY <i>variable-name</i> may not be used as a handle.</b>
-------------------	--

---

### Explanation

x(...)=>y is invalid unless x returns a HANDLE.

---

<b>IBM1969I S</b>	<b>The variable <i>variable-name</i> is used as a handle, but it is not a scalar.</b>
-------------------	---

---

### Explanation

Only scalars can be used as handles.

---

<b>IBM1970I S</b>	<b><i>BUILTIN</i> name built-in function may not be used as a handle.</b>
-------------------	---

---

### Explanation

The named built-in function cannot be used as a handle.

---

<b>IBM1971I S</b>	<b>The GENERIC variable <i>variable-name</i> may not be used as a handle.</b>
-------------------	---

---

### Explanation

GENERIC references may not be used as handles.

---

<b>IBM1972I S</b>	<b><i>variable-name</i> may not be used as a handle.</b>
-------------------	--

---

### Explanation

x=>y is invalid unless x has the HANDLE attribute

---

<b>IBM1976I S</b>	<b>DBCS characters are allowed only in G and M constants.</b>
-------------------	---

---

### Explanation

Hex strings (strings ending in one of the suffixes X, BX, B4, GX or XN), bit strings (strings ending in the suffix B), and character strings not ending in the suffix M must contain only SBCS characters.

---

<b>IBM1977I S</b>	<b>SBCS characters are not allowed in G constants.</b>
-------------------	--

---

### Explanation

Mixed SBCS and DBCS is allowed only in M constants.

---

<b>IBM1978I S</b>	<b>Invalid use of SBCS encoded as DBCS.</b>
-------------------	---

---

### Explanation

Outside of comments, SBCS can be encoded as DBCS only as part of an identifier.

---

<b>IBM1981I S</b>	<b><i>BUILTIN</i> function may not be used outside a PROCEDURE.</b>
-------------------	---

---

### Explanation

The named built-in function may be used only inside procedures.

---

<b>IBM1984I S</b>	<b>File <i>filename</i> could not be opened.</b>
-------------------	--

---

### Explanation

The named file could not be opened. Make sure that the file is named correctly, that it exists, that it has the proper attributes and that you have the needed permissions to access it.

---

<b>IBM1985I S</b>	<b>File <i>filename</i> could not be opened. C-library-message</b>
-------------------	--

---

### Explanation

The named file could not be opened. Make sure that the file is named correctly, that it exists, that it has the proper attributes and that you have the needed



permissions to access it. The accompanying C library message may help identify the problem.

---

**IBM1986I S      A system or user abend has occurred.**

---

### Explanation

This error can occur, for example, when writing the MDECK to a SYSPUNCH dataset that is too small or when writing to one of the other compiler output datasets when they are too small. It would probably be useful to examine the JES log.

---

**IBM1987I S      File *filename* could not be opened because too many files have been opened.**

---

### Explanation

The maximum number of open files has been reached. On some platforms, there is a system limit on the number of open files, but the compiler also has a limit of 2047 include files.

---

**IBM1988I S      File *filename* could not be opened due to an access violation.**

---

### Explanation

Either the file is in use or you tried to open a file for which you do not have sufficient privilege.

---

**IBM1989I S      File name or extension for *filename* is too long.**

---

### Explanation

The length of the file name or extension is greater than the maximum allowed.

---

**IBM1990I S      File name *filename* has invalid format.**

---

### Explanation

Apart from z/OS UNIX, file names should not contain quotes. Under z/OS UNIX, if the file name does contain quotes, it should specify a PDS member.

---

**IBM1991I S      Only LIMITED ENTRY may be passed BYVALUE. All other ENTRY must be passed BYADDR.**

---

### Explanation

Unless an ENTRY has the LIMITED attribute, it must be passed BYADDR.

---

**IBM1992I S      A file name must be specified.**

---

### Explanation

The command syntax is:

```
PLI {d:}{path}filename{.ext} {( options}
```

---

**IBM1993I S      Compilation terminated by ATTENTION condition.**

---

### Explanation

If you hit CTL-BRK during the compilation, the compilation will stop.

---

**IBM1994I S      Internal compiler error: storage header has been overwritten**

---

### Explanation

This message indicates that there is an error in the front end of the compiler. Please report the problem to IBM.

---

**IBM1995I S      Internal compiler error: storage tail has been overwritten.**

---

### Explanation

This message indicates that there is an error in the front end of the compiler. Please report the problem to IBM.

---

**IBM1996I S      Internal compiler error: free amount *free request size* does not match allocated size *allocated size*.**

---

### Explanation

This message indicates that there is an error in the front end of the compiler. Please report the problem to IBM.

---

**IBM1997I S      Internal compiler error: no WHEN clause satisfied within *module name***

---

### Explanation

This message indicates that there is an error in the front end of the compiler. Please report the problem to IBM.

---

**IBM1998I S      Internal compiler error: protection exception in *module name***

---

## Explanation

This message indicates that there is an error in the front end of the compiler. Please report the problem to IBM.

---

**IBM1999I S**      *note*

## Explanation

This message indicates that there is an error in the back end of the compiler. Please report the problem to IBM.

---

**IBM2000I S**      **Internal compiler error: assertion failed on line *source line* in *procedure name* in *package name* >> *extra text***

## Explanation

This message indicates that there is an error in the front end of the compiler. Report the problem to IBM.

---

**IBM2001I S**      **A LICENSE REQUEST WAS DENIED FOR PL/I, PID 5655-B22. THE REQUEST ENDED WITH STATUS CODE *STATUS CODE* AND RETURN CODE *RETURN CODE*. THE COMPILATION WILL BE TERMINATED.**

## Explanation

IBM License Manager is installed on your system, but the request to verify that you have a license to use the PL/I compiler has failed.

---

**IBM2002I S**      **Close of file *filename* failed. There may be a space problem.**

## Explanation

An error has occurred while attempting to close a file.

---

**IBM2003I S**      **Write to file *filename* failed. There may be a space problem.**

## Explanation

An error has occurred while attempting to write to a file.

---

**IBM2004I S**      **ATTACH reference must be declared with either a null argument list or with an argument list specifying only one argument.**

## Explanation

If the ATTACH reference is declared without an argument list, change the declare to specify a null argument list by adding a pair of parentheses.

---

**IBM2005I S**      **ATTACH reference must be an ENTRY reference.**

## Explanation

GENERIC references and built-in subroutines may not be attached.

---

**IBM2006I S**      **ATTACH reference cannot be a function reference.**

## Explanation

An ATTACH reference must not have the RETURNS attribute, even if the value returned is an ENTRY.

---

**IBM2007I S**      **ATTACH reference must use LINKAGE(SYSTEM).**

## Explanation

Unless the default linkage is overridden, OPTIONS(LINKAGE(SYSTEM)) must be specified on the declare for the ATTACH reference.

---

**IBM2008I S**      **ATTACH reference cannot be FETCHABLE.**

## Explanation

An ATTACH reference may not be used in a FETCH or RELEASE statement.

---

**IBM2009I S**      **ATTACH reference cannot be a nested PROCEDURE.**

## Explanation

An ATTACH reference must be a level-1 procedure, although it does need to be external.

---

**IBM2010I S**      **ATTACH reference, if an ENTRY variable, must be a LIMITED ENTRY.**

## Explanation

Specify the LIMITED attribute in the declare for the ENTRY VARIABLE.

---

**IBM2011I S**      **ATTACH reference, if it has an argument, must declare that argument as POINTER BYVALUE.**

## Explanation

No other argument types are support in ATTACH statements.

---

**IBM2012I S**      **The *attribute keyword* attribute is invalid in an ALIAS definition.**

## Explanation

The specified attribute must not be used in a DEFINE ALIAS statement. This includes attributes such as ASSIGNABLE, but, as in RETURNS descriptors, the attributes STRUCTURE, UNION and DIMENSION are not permitted in ALIAS definitions. Hence, the following are invalid:

```
define alias array (10) fixed bin;  
define alias point 1, 2 fixed bin, 2 fixed  
bin;
```

---

**IBM2013I S**      **Only one description is allowed in an ALIAS definition.**

## Explanation

The syntax allows the name in an alias definition to be followed by a description list, but that description list must consist of exactly one description. The following is invalid:

```
define alias x fixed bin, float bin;
```

---

**IBM2014I S**      **Extents in type descriptors must be constant.**

## Explanation

In ALIAS and STRUCTURE definitions, each string length and AREA size must be specified with a restricted expression. Like RETURNS descriptors, asterisks and non-constant expressions are not permitted.

---

**IBM2015I S**      **VALUE attribute conflicts with data type.**

## Explanation

The VALUE attribute is allowed only with computational data types as well as pointer, offset, handle and ordinal.

---

**IBM2016I S**      **The VALUE attribute is not allowed with typed structures.**

## Explanation

The VALUE attribute is not allowed with typed structures.

---

**IBM2017I S**      **INITIAL TO is valid only for NATIVE POINTER.**

## Explanation

INITIAL TO is not valid for NONNATIVE POINTERS. It is also invalid for non-POINTERS since they cannot be assigned addresses.

---

**IBM2018I S**      **INITIAL TO is supported only for STATIC variables.**

## Explanation

INITIAL TO is not supported for variables belonging to any storage class other than STATIC.

---

**IBM2019I S**      **Unsupported LINKAGE used with the LIST attribute.**

## Explanation

Specify OPTIONS(LINKAGE(OPTLINK)) or, on WINDOWS, OPTIONS(LINKAGE(CDECL)) on the PROCEDURE or ENTRY having a parameter with the LIST attribute and then recompile.

---

**IBM2020I S**      **There is more than one element named *reference name* in the typed structure *structure name*.**

## Explanation

All references must be unambiguous.

---

**IBM2021I S**      **There is no element named *reference name* in the structure *structure name*.**

## Explanation

All structure references must be explicitly declared.

---

**IBM2022I S**      **The ENTRY *variable-name* may not be used as a typed structure qualifier since it does not have the RETURNS attribute.**

## Explanation

Functions, but not subprocedures, can be used as typed structure qualifiers (and then only if they return a typed structure).

**IBM2023I S**      **The ENTRY *variable-name* may not be used as a typed structure qualifier.**

### Explanation

x(...)=>y is invalid unless x returns a typed structure.

**IBM2024I S**      **The array variable *variable-name* may be used as a typed structure qualifier only if it is completely subscripted before its dot qualification.**

### Explanation

For instance, if x is an array of structure t with member m, x.m(2) is invalid. However, x(2).m is valid.

**IBM2025I S**      ***BUILTIN name* built-in function may not be used as a typed structure qualifier.**

### Explanation

The named built-in function cannot be used as a typed structure qualifier.

**IBM2026I S**      **The GENERIC variable *variable-name* may not be used as a typed structure qualifier.**

### Explanation

GENERIC references may not be used as typed structure qualifiers.

**IBM2027I S**      ***variable-name* may not be used as a structure qualifier.**

### Explanation

x.y is invalid unless x is a structure, a union or a function returning a typed structure.

**IBM2028I S**      **TYPEs must be defined before their use.**

### Explanation

The DEFINE STRUCTURE or DEFINE ALIAS statement for a type x must precede any of use of x as attribute type. The following two statements should be in the opposite order.

```
dcl x type point;

define structure
  1 point,
  2 x fixed bin(31),
```

```
2 y fixed bin(31);
```

**IBM2029I S**      **A DEFINE STRUCTURE statement must consist of a level one structure name optionally followed by its substructures. Use DEFINE ALIAS to set a name as a synonym for a data type.**

### Explanation

A DEFINE STRUCTURE statement can specify just a level 1 name only if there no other attributes specified. The following are invalid

```
define structure 1 int fixed bin;

define structure 1 a type b;
```

**IBM2030I S**      **INITIAL attribute is invalid in structure definitions.**

### Explanation

Defined structure types must be initialized via assignments.

**IBM2031I S**      **Storage attributes are invalid in structure definition.**

### Explanation

Storage attributes, such as AUTOMATIC and BYADDR, must be specified with variables declared with structure type.

**IBM2032I S**      **DEFINE STRUCTURE may not specify an array of structures.**

### Explanation

The level 1 name in a structure definition may not have the DIMENSION attribute.

**IBM2033I S**      **Only one description is allowed in a structure definition.**

### Explanation

The syntax allows the name in a structure definition to be followed by a description list, but that description list must consist of exactly one structure description. The following is invalid:

```
define structure
  1 point,
  2 x fixed bin(31),
```

```

2 y fixed bin(31),
1 rectangle,
2 upper_left type point,
2 lower_right type point;

```

---

**IBM2034I S**      **The argument to the type function *type function* must be an ordinal type name.**

### Explanation

The argument to the type functions FIRST and LAST must be an unambiguous type name, and that type must be an ordinal type.

---

**IBM2035I S**      **The argument to the type function *type function* must be a structure type name.**

### Explanation

The argument to the type function NEW must be an unambiguous type name, and that type must be a structure type.

---

**IBM2036I S**      **The second argument to the type function *type function* must have locator type.**

### Explanation

The second argument to the BIND type function must be a pointer or offset value that is to be converted to a handle to the structure type named as the first argument.

---

**IBM2037I S**      **The first argument to the type function *type function* must be a structure type name.**

### Explanation

The first argument to the type functions BIND must be an unambiguous type name, and that type must be a structure type.

---

**IBM2038I S**      ***BUILTIN* name argument must have HANDLE type.**

### Explanation

An expression contains the named built-in function with an argument that is not a HANDLE.

---

**IBM2039I S**      **Argument to *variable name* pseudovisible must be a HANDLE.**

### Explanation

The TYPE pseudovisible can be applied only to HANDLES.

---

**IBM2040I S**      **The argument to the type function *type function* must be a defined type.**

### Explanation

The first argument to the type function SIZE must be the unambiguous name of a defined type.

---

**IBM2041I S**      **The first argument to the type function *type function* must be a defined type.**

### Explanation

The first argument to the type function CAST must be the unambiguous name of a defined type.

---

**IBM2042I S**      **The second argument to the type function *type function* must be a scalar.**

### Explanation

The second argument to the type function CAST must be a scalar.

---

**IBM2043I S**      **The second argument to the type function *type function* must have the same size as the first argument.**

### Explanation

The second argument to the type function CAST must have the same size as the size of the type that is the first argument.

---

**IBM2044I S**      **The get storage function to *BUILTIN* name must be a LIMITED ENTRY with LINKAGE(OPTLINK) and an appropriate entry description list.**

### Explanation

The function should be declared as

```

dcl get entry( pointer byvalue,
               fixed bin(31) byaddr,
               fixed bin(31) byaddr )
returns( pointer );

```

---

**IBM2045I S**      **The free storage function to *BUILTIN* name must be a LIMITED ENTRY with LINKAGE(OPTLINK)**

and an appropriate entry description list.

## Explanation

The function should be declared as

```
dcl free entry( pointer byvalue,  
               pointer byvalue,  
               fixed bin(31) byvalue );
```

---

**IBM2046I S**      **OPTIONS(NODESCRIPTOR) is required if the last parameter to an ENTRY or PROC has the LIST attribute.**

## Explanation

If an entry or procedure has a variable number of arguments in imitation of C, i.e. if its last parameter has the LIST attribute, then OPTIONS(NODESCRIPTOR) must be specified (and valid).

---

**IBM2047I S**      **The VARGLIST built-in function may be used only inside PROCEDURES whose last parameter had the LIST attribute.**

## Explanation

The VARGLIST built-in function obtains the address of the variable argument list passed to procedures whose last parameter had the LIST attribute. It may not be used in subprocedures of such routines or in procedures having either no parameters or having no parameter declared with the LIST attribute.

---

**IBM2048I S**      **The LIST attribute may be specified only on non-nested PROCEDURES, external entry constants, and limited entry variables.**

## Explanation

The LIST attribute causes a variable argument list to be built, and such argument lists are permitted neither with nested procedures nor with entry variables declared without the LIMITED attribute.

---

**IBM2049I S**      **The LIST attribute may be specified only on the last element of an entry description list.**

## Explanation

The LIST attribute indicates that zero or more parameters may be specified after it, but those parameters may not be described.

---

**IBM2050I S**      **Descriptors are supported for Fortran only for scalar character strings.**

## Explanation

If OPTIONS( FORTRAN DESCRIPTOR ) applies, all parameters other than character strings must have constant extents.

---

**IBM2051I S**      **Descriptors are not supported for Fortran for routines defined by or containing ENTRY statements.**

## Explanation

If OPTIONS( FORTRAN DESCRIPTOR ) applies to an ENTRY statement or to a procedure containing an ENTRY statement, all parameters must have constant extents.

---

**IBM2052I S**      **A function defined by a PROCEDURE containing ENTRY statements must return aggregate values BYADDR.**

## Explanation

Either BYADDR must be specified in the RETURNS option of the PROCEDURE statement, or the RETURNS(BYADDR) suboption of the DEFAULT statement must be in effect.

---

**IBM2053I S**      **A function defined by an ENTRY statement must return aggregate values BYADDR.**

## Explanation

Either BYADDR must be specified in the RETURNS option of the ENTRY statement, or the RETURNS(BYADDR) suboption of the DEFAULT statement must be in effect.

---

**IBM2054I S**      **A PROCEDURE containing ENTRY statements must receive all non-pointer parameters BYADDR.**

## Explanation

Either BYADDR must be specified in the declares for the parameters, or the BYADDR suboption of the DEFAULT statement must be in effect.

---

**IBM2055I S**      **An ENTRY statement must receive all parameters BYADDR.**

### Explanation

Either BYADDR must be specified in the declares for the parameters, or the BYADDR suboption of the DEFAULT statement must be in effect.

---

**IBM2056I S**      **ENTRY statement is not allowed in DO loops.**

### Explanation

ENTRY statements are allowed in non-iterative DO groups, but not in iterative DO loops.

---

**IBM2057I S**      **RETURN statement is invalid inside a BEGIN in a PROCEDURE that contains ENTRY statements.**

### Explanation

A RETURN statement is valid inside a BEGIN block only if the PROCEDURE enclosing that BEGIN block contains no ENTRY statements.

---

**IBM2058I S**      **In a PROCEDURE without the RETURNS option, any ENTRY statement must use BYADDR for its RETURNS value.**

### Explanation

Either BYADDR must be specified in the RETURNS option of the ENTRY statement, or the RETURNS(BYADDR) suboption of the DEFAULT statement must be in effect.

---

**IBM2059I S**      **OPTIONS(FORTRAN) is invalid if any parameters are UNALIGNED BIT.**

### Explanation

Only ALIGNED BIT strings with constant length are valid with OPTIONS(FORTRAN).

---

**IBM2060I S**      **Attributes may not be specified in ALLOCATES of BASED variables.**

### Explanation

Attributes may be specified only in ALLOCATES of CONTROLLED variables.

---

**IBM2061I S**      **Attributes specified for *variable-name* in ALLOCATE statement do not match those in its declaration.**

### Explanation

An attribute, such as CHARACTER, may be specified in an ALLOCATE statement only if it is also specified in the declaration of the variable to be allocated.

---

**IBM2062I S**      **Structuring specified in ALLOCATE of *variable-name* does not match that in its declaration.**

### Explanation

In an ALLOCATE statement for a structure, all the levels specified in its declaration must be specified, and no new levels may be specified.

---

**IBM2063I S**      **Specification of extent for *variable-name* in ALLOCATE statement is invalid since it was declared with a constant extent.**

### Explanation

An attribute, such as CHARACTER, may be specified in an ALLOCATE statement only if it is also specified in the declaration of the variable to be allocated with either an asterisk or a non-constant expression.

---

**IBM2064I S**      **The extent specified for the lower bound for dimension *dimension-value* of *variable-name* in ALLOCATE statement is invalid since that variable was declared with a different constant extent.**

### Explanation

If a bound for a CONTROLLED variable is declared as a constant, then it must be specified as the same constant value in any ALLOCATE statement for that variable.

---

**IBM2065I S**      **The extent specified for the upper bound for dimension *dimension-value* of *variable-name* in ALLOCATE statement is invalid since that variable was declared with a different constant extent.**

### Explanation

If a bound for a CONTROLLED variable is declared as a constant, then it must be specified as the same constant value in any ALLOCATE statement for that variable.

---

**IBM2075I S**      **ENTRY types and arguments in *type function* must be LIMITED.**

### Explanation

A ENTRY type or argument used with the type function CAST must have the attribute LIMITED.

---

<b>IBM2076I S</b>	<b>FLOAT types and arguments in <i>type function</i> must be NATIVE REAL.</b>
-------------------	---

---

### Explanation

A FLOAT type or argument used with the type function CAST must have the attributes NATIVE REAL.

---

<b>IBM2077I S</b>	<b>FIXED BIN types and arguments in <i>type function</i> must be REAL with scale factor zero.</b>
-------------------	---

---

### Explanation

A FIXED BIN type or argument used with the type function CAST must have the attributes REAL PRECISION(p,0).

---

<b>IBM2078I S</b>	<b>Types with the attributes <i>attributes</i> are not supported as the target of the <i>type function</i> function.</b>
-------------------	--

---

### Explanation

The first argument to the type function CAST must be a type with one of the following sets of attributes: REAL FIXED BIN(p,0) or NATIVE REAL FLOAT.

---

<b>IBM2079I S</b>	<b>Arguments with the attributes <i>attributes</i> are not supported as the source in the <i>type function</i> function.</b>
-------------------	--

---

### Explanation

The second argument to the type function CAST must have one of the following sets of attributes: REAL FIXED BIN(p,0) or NATIVE REAL FLOAT.

---

<b>IBM2080I S</b>	<b><i>string</i> is not a supported date-time pattern.</b>
-------------------	--

---

### Explanation

See the Language Reference Manual for a list of the supported DATE patterns.

---

<b>IBM2081I S</b>	<b>DATE attribute is valid only with NONVARYING CHARACTER, FIXED DECIMAL and arithmetic PICTURE.</b>
-------------------	--

---

### Explanation

The DATE attribute cannot be used on any other than the named types.

---

<b>IBM2082I S</b>	<b>DATE attribute conflicts with non-zero scale factor.</b>
-------------------	---

---

### Explanation

The DATE attribute can be used on a numeric only if it has a scale factor of zero.

---

<b>IBM2083I S</b>	<b>DATE attribute conflicts with COMPLEX attribute.</b>
-------------------	---

---

### Explanation

The DATE attribute can be used on a numeric only if it is REAL.

---

<b>IBM2084I S</b>	<b>DATE attribute conflicts with PICTURE string containing characters other than 9.</b>
-------------------	---

---

### Explanation

The DATE attribute can be used on a PICTURE only if the PICTURE consists entirely of 9's.

---

<b>IBM2085I S</b>	<b>Length of DATE pattern and base precision do not match.</b>
-------------------	--

---

### Explanation

The DATE attribute can be used on a numeric only if its precision equals the length of the DATE pattern.

---

<b>IBM2086I S</b>	<b>Length of DATE pattern and base length do not match.</b>
-------------------	---

---

### Explanation

The DATE attribute can be used on a string only if its length equals the length of the DATE pattern.

---

<b>IBM2087I S</b>	<b>DATE attribute conflicts with adjustable length.</b>
-------------------	---

---

### Explanation

The DATE attribute can be used on a string only if the string is declared with a constant length.

---

<b>IBM2088I S</b>	<b>Response file is too large. Excess will be ignored.</b>
-------------------	--

---

### Explanation

The options string built from the response file must be less than 32767 characters long.



---

<b>IBM2089I S</b>	<b>Line in response file is longer than 100 characters. That line and rest of file will be ignored.</b>
-------------------	---

---

### Explanation

All lines in any response file must contain no more than 100 characters.

---

<b>IBM2090I S</b>	<b>The <i>keyword</i> statement cannot be used under SYSTEM(CICS).</b>
-------------------	--

---

### Explanation

The named statement cannot be used under CICS.

---

<b>IBM2091I S</b>	<b>DISPLAY with REPLY cannot be used under SYSTEM(CICS).</b>
-------------------	--

---

### Explanation

DISPLAY with REPLY cannot be used under CICS.

---

<b>IBM2092I S</b>	<b>The <i>BUILTIN</i> name built-in function cannot be used under SYSTEM(CICS).</b>
-------------------	---

---

### Explanation

The named built-in function cannot be used under CICS.

---

<b>IBM2093I S</b>	<b>The <i>keyword</i> statement cannot be used under SYSTEM(CICS) except with SYSPRINT.</b>
-------------------	---

---

### Explanation

The named I/O statement cannot be used under CICS unless the file used in the statement is SYSPRINT.

---

<b>IBM2094I S</b>	<b>Source in CAST to FLOAT must be FLOAT, FIXED or ORDINAL.</b>
-------------------	---

---

### Explanation

The source in a CAST to a FLOAT must be FLOAT, FIXED or ORDINAL.

---

<b>IBM2095I S</b>	<b>Target in CAST from FLOAT must be FLOAT, FIXED BIN or ORDINAL.</b>
-------------------	---

---

### Explanation

The target in a CAST from a FLOAT must be FLOAT, FIXED BIN or ORDINAL.

---

<b>IBM2096I S</b>	<b>Target in CAST from FIXED DEC must be FLOAT, FIXED BIN or ORDINAL.</b>
-------------------	---

---

### Explanation

The target in a CAST from a FIXED DEC must be FLOAT, FIXED BIN or ORDINAL.

---

<b>IBM2097I S</b>	<b>FIXED DEC types and arguments in <i>type function</i> must be REAL with non-negative scale factor.</b>
-------------------	---

---

### Explanation

A FIXED DEC type or argument used with the type function CAST must have the attributes REAL PRECISION(p,q) with p >= q and q >= 0.

---

<b>IBM2098I S</b>	<b>Source in CAST to FIXED DEC must be FLOAT, FIXED or ORDINAL.</b>
-------------------	---

---

### Explanation

The source in a CAST to a FIXED DEC must be FLOAT, FIXED or ORDINAL.

---

<b>IBM2099I S</b>	<b>CASEX strings must have the same length.</b>
-------------------	---

---

### Explanation

The two strings in the CASEX option must have the same length. The second argument is the uppercase value of the first. If a character in the first string does not have an uppercase value, use the character itself as the uppercase value.

---

<b>IBM2100I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. The ORDINAL types do not match.</b>
-------------------	---

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2101I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. The HANDLE types do not match.</b>
-------------------	--

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2102I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous</b>
-------------------	--

---

**declaration. The STRUCTURE types do not match.**

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2103I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. Alignment does not match.</b>
-------------------	---

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2104I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. Number and attributes of structure members do not match.</b>
-------------------	--

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2105I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. The number of dimensions do not match.</b>
-------------------	--

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2106I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. Lower bounds do not match.</b>
-------------------	--

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2107I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not</b>
-------------------	--

---

**match those in its previous declaration. Upper bounds do not match.**

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2108I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. RETURNS attributes do not match.</b>
-------------------	--

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2109I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. BYVALUE and BYADDR attributes in RETURNS do not match.</b>
-------------------	--

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2110I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. LINKAGE values do not match.</b>
-------------------	--

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

<b>IBM2111I S</b>	<b>The attributes of the EXTERNAL variable <i>variable name</i> do not match those in its previous declaration. OPTIONS values do not match.</b>
-------------------	--

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM2112I S**      **The attributes of the EXTERNAL variable *variable name* do not match those in its previous declaration. Parameter counts do not match.**

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM2113I S**      **The attributes of the EXTERNAL variable *variable name* do not match those in its previous declaration. BYVALUE and BYADDR attributes in parameter *parameter-number* do not match.**

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM2114I S**      **The attributes of the EXTERNAL variable *variable name* do not match those in its previous declaration. The number of dimensions for parameter *parameter-number* do not match.**

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM2115I S**      **The attributes of the EXTERNAL variable *variable name* do not match those in its previous declaration. Lower bounds for parameter *parameter-number* do not match.**

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM2116I S**      **The attributes of the EXTERNAL variable *variable name* do not match those in its previous declaration. Upper bounds for parameter *parameter-number* do not match.**

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM2117I S**      **The attributes of the EXTERNAL variable *variable name* do not match those in its previous declaration. Alignment of parameter *parameter-number* does not match.**

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM2118I S**      **The attributes of the EXTERNAL variable *variable name* do not match those in its previous declaration. Number and attributes of structure members in parameter *parameter-number* do not match.**

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM2119I S**      **The attributes of the EXTERNAL variable *variable name* do not match those in its previous declaration. Attributes of parameter *parameter-number* do not match.**

---

### Explanation

EXTERNAL variables can be declared in more than one procedure in a compilation unit, but the attributes in those declarations must match.

---

**IBM2120I S**      **AREAs are not supported in RETURNS.**

---

### Explanation

But an AREA may be output parameter.

---

**IBM2121I S**      **Argument number *argument-number* in ENTRY reference *entry name* must have the same size as the corresponding parameter.**

---

## Explanation

For a AREA parameter declared with constant size, any corresponding argument must have equal constant size. Dummy AREA arguments are not supported in this scenario.

```
dcl x entry( area(10000) );
dcl a area(8000) );
call x( a );
```

**IBM2122I S** User exit routine addresses are invalid. Check that the user exit routine is a **PACKAGE** that exports only **IBMUEXIT**.

## Explanation

The IBMUEXIT routine should have a PACKAGE statement that specifies EXPORTS( IBMUEXIT ) and not EXPORTS( \* ).

**IBM2123I S** When expanded, **DEFINE STRUCTURE** type would have an array with more than 15 total dimensions.

## Explanation

The total number of dimensions allowed in a DEFINED STRUCTURE type used in XMLCHAR must not exceed 15.

**IBM2124I S** When expanded, **DEFINE STRUCTURE** type would contain more than 15 logical levels.

## Explanation

The total number of logical levels allowed in a DEFINED STRUCTURE type used in XMLCHAR must not exceed 15.

**IBM2125I S** *variable-name* is a typed structure and hence cannot be used in **GET DATA**.

## Explanation

The use of DEFINE STRUCTURE types is not supported in GET DATA statements.

```
define structure
  1 a,
  2 a1 fixed bin(31),
  2 a2 fixed bin(31);

dcl x type a;
```

```
get skip data( x );
```

**IBM2126I S** *variable-name* is a member of a typed structure and hence cannot be used in data directed I/O.

## Explanation

The use of members of DEFINE STRUCTURE types is not supported in data directed I/O statements.

```
define structure
  1 a,
  2 a1 fixed bin(31),
  2 a2 fixed bin(31);

dcl x type a;

x.a1 = 17;
x.a2 = 29;

put skip data( x.a );
```

**IBM2127I S** The **ENTRY** named *ENTRY variable name* matches the reference to the **GENERIC** variable *GENERIC variable name*, but while the **GENERIC** reference is used as a function, the matching **ENTRY** does not have the **RETURNS** attribute.

## Explanation

A match for the GENERIC reference has been found, but the match is not suitable because while the GENERIC reference is used as a function, the matching ENTRY is not a function. For example, the first GENERIC reference below is invalid, while the second is ok.

```
dcl e1 entry( fixed bin );
dcl e2 entry( fixed bin, fixed bin )
returns( fixed bin );
dcl gp generic( e1 when( * ),
               e2 when( *, * ) );

rc = gp( 0 );

rc = gp( 0, 0 );
```

**IBM2128I S** The **ENTRY** named *ENTRY variable name* matches the reference to the **GENERIC** variable *GENERIC variable name*, but while the **GENERIC** reference is used as a function acting as a locator qualifier, the matching **ENTRY** does not return a **POINTER**.

## Explanation

A match for the GENERIC reference has been found, but the match is not suitable because while the GENERIC reference is used as a locator, the matching ENTRY is not a function returning a POINTER. For example, the first GENERIC reference below is invalid, while the second is ok.

```
dcl f1 entry( fixed bin ) returns( fixed
bin );
dcl f2 entry( fixed bin, fixed bin )
returns( pointer );
dcl bx based fixed bin;
dcl gf generic( f1 when( * ),
               f2 when( *, * ) );

rc = gf( 0 )->bx;

rc = gf( 0, 0 )->bx;
```

**IBM2129I S**      **The ENTRY named *ENTRY* variable name matches the reference to the GENERIC variable *GENERIC* variable name, but while the GENERIC reference is used as a repeating function reference, the matching ENTRY cannot be so used.**

## Explanation

A match for the GENERIC reference has been found, but the match is not suitable because while the GENERIC reference is used as a function whose return value is a function that is invoked (and so on, as the number of argument lists mandates), the matching ENTRY cannot be so used. For example, the first GENERIC reference below is invalid, while the second is ok.

```
dcl x1 entry( fixed bin )
returns( entry );
dcl x2 entry( fixed bin, fixed bin )
returns( entry returns( fixed
bin ) );
dcl gx generic( x1 when( * ),
               x2 when( *, * ) );

rc = gx( 0 )();

rc = gx( 0, 0 )();
```

**IBM2130I S**      **iSUB defining is not valid with the POSITION attribute.**

## Explanation

The POSITION attribute can be used only with string overlay defining.

```
dcl b(4) char(2) pos(2) def( a(1sub,1sub) );
```

**IBM2131I S**      **In iSUB defining, the base and DEFINED variables must match.**

## Explanation

The defined and base arrays in iSUB defining must have identical attributes apart from the dimension attribute.

```
dcl a(4) fixed bin(31);
dcl b(4) fixed bin(15) def( a(1sub,1sub) );
```

**IBM2132I S**      **The i in an iSUB reference must not exceed the dimensionality of the DEFINED variable.**

## Explanation

The i in an iSUB reference must refer to a subscript of the DEFINED variable and hence must not be greater than the number of dimensions for that variable.

```
dcl a(4,4) fixed bin(31);
dcl b(4) fixed bin(15) def( a(1sub,2sub) );
```

**IBM2133I S**      **An iSUB variable cannot be defined on a cross-section of its base.**

## Explanation

In an iSUB variable, no asterisks may appear in the specification of the base array.

```
dcl a(4,4) fixed bin(31);
dcl b(4) fixed bin(15) def( a(1sub,*) );
```

**IBM2134I S**      **iSUB defining is supported only for arrays of scalars.**

## Explanation

iSUB defining is not supported for structures and unions.

**IBM2135I S**      **DFT(DESCLIST) conflicts with CMPAT(cmpat-suboption).**

## Explanation

If CMPAT(V1) or CMPAT(V2) is specified, then DFT(DESCLOCATOR) must be in effect (as it is by default on z/OS).

---

**IBM2136I S**      **The number of indices specified for the LABEL *identifier* does not match the number previously specified.**

---

## Explanation

The number of indices given for an element of a label constant array must not vary.

```
a(1,1): ....  
a(1,2): ....  
a(3): ....
```

---

**IBM2137I S**      **Indices have been specified for the LABEL *identifier* when it was previously specified without indices.**

---

## Explanation

A label constant cannot be subscripted if its first use contains no subscripts.

```
a: ....  
a(3): ....
```

---

**IBM2138I S**      **Indices have not been specified for the LABEL *identifier* when it was previously specified with indices.**

---

## Explanation

A label constant must be subscripted if its first use contains subscripts.

```
a(3): ....  
a: ....
```

---

**IBM2139I S**      **The Language Environment run-time is not current enough.**

---

## Explanation

The compiler requires that you use z/OS Language Environment V2 R1 or later.

---

**IBM2140I S**      **Length of second argument to the REPLACEBY2 built-in function must be twice that of the third.**

---

## Explanation

The second argument to the REPLACEBY2 built-in function provides the set of pairs of characters which are to replace the corresponding characters in the third argument, and hence the length of the second string must be twice that of the third.

---

**IBM2141I S**      **First argument to the *BUILTIN name* built-in function must be a structure.**

---

## Explanation

The first argument to the named built-in subroutine must be a structure.

---

**IBM2142I S**      **Event structure argument to the *BUILTIN name* built-in function has too few elements.**

---

## Explanation

The first argument to the named built-in subroutine must be a structure supplying the event handlers for the SAX parser, and that structure must have exactly the right number of members. See the Programming Guide for more details.

---

**IBM2143I S**      **Event structure argument to the *BUILTIN name* built-in function has too many elements.**

---

## Explanation

The first argument to the named built-in subroutine must be a structure supplying the event handlers for the SAX parser, and that structure must have exactly the right number of members. See the Programming Guide for more details.

---

**IBM2144I S**      **Member *member-number* in the event structure argument to the *BUILTIN name* built-in function is not a scalar.**

---

## Explanation

The first argument to the named built-in subroutine must be a structure supplying the event handlers for the SAX parser, and each element of that structure must be a scalar. See the Programming Guide for more details.

---

**IBM2145I S**      **Member *member-number* in the event structure argument to the**

---

***BUILTIN name* built-in function must be a LIMITED ENTRY.**

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must be a LIMITED ENTRY. See the Programming Guide for more details.

---

<b>IBM2146I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN name</i> built-in function must return BYVALUE a NATIVE FIXED BIN(31).</b>
-------------------	---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must be a function returning BYVALUE a NATIVE FIXED BIN(31). See the Programming Guide for more details.

---

<b>IBM2147I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN name</i> built-in function must have a non-empty entry description list.</b>
-------------------	---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a non-empty entry description list. See the Programming Guide for more details.

---

<b>IBM2148I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN name</i> built-in function has a parameter count of <i>specified-parm-count</i> when the correct parameter count is <i>required-parm-count</i> .</b>
-------------------	---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have the correct number of parameters. See the Programming Guide for more details.

---

<b>IBM2149I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN name</i> built-in function must have a BYVALUE POINTER as its first parameter.</b>
-------------------	---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE POINTER as its first parameter. See the Programming Guide for more details.

---

<b>IBM2150I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN name</i> built-in function must have a BYVALUE POINTER as its second parameter.</b>
-------------------	--

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE POINTER as its second parameter. See the Programming Guide for more details.

---

<b>IBM2151I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN name</i> built-in function must have a BYVALUE NATIVE FIXED BIN(31) as its third parameter.</b>
-------------------	--

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE NATIVE FIXED BIN(31) as its third parameter. See the Programming Guide for more details.

---

<b>IBM2152I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN name</i> built-in function must have a BYVALUE POINTER as its fourth parameter.</b>
-------------------	--

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE POINTER as its fourth parameter. See the Programming Guide for more details.

---

<b>IBM2153I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN name</i> built-in function must have a BYVALUE NATIVE FIXED BIN(31) as its fifth parameter.</b>
-------------------	--

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a

BYVALUE NATIVE FIXED BIN(31) as its fifth parameter. See the Programming Guide for more details.

---

**IBM2154I S**      Member *member-number* in the event structure argument to the **BUILTIN** name built-in function must have a BYVALUE POINTER as its second parameter.

---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE POINTER as its second parameter. See the Programming Guide for more details.

---

**IBM2155I S**      Member *member-number* in the event structure argument to the **BUILTIN** name built-in function must have a BYVALUE NATIVE FIXED BIN(31) as its fourth parameter.

---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE NATIVE FIXED BIN(31) as its fourth parameter. See the Programming Guide for more details.

---

**IBM2156I S**      Member *member-number* in the event structure argument to the **BUILTIN** name built-in function must have a BYVALUE NATIVE FIXED BIN(31) as its second parameter.

---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE NATIVE FIXED BIN(31) as its second parameter. See the Programming Guide for more details.

---

**IBM2157I S**      Member *member-number* in the event structure argument to the **BUILTIN** name built-in function must have a BYVALUE CHAR(1) or BYVALUE WCHAR(1) as its second parameter.

---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE CHAR (or BYVALUE WIDECHAR) of length

one as its second parameter. See the Programming Guide for more details.

---

**IBM2158I S**      Member *member-number* in the event structure argument to the **BUILTIN** name built-in function has the wrong linkage.

---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have the PL/I default linkage. See the Programming Guide for more details.

---

**IBM2159I S**      Member *member-number* in the event structure argument to the **BUILTIN** name built-in function must have the NODESCRIPTOR option.

---

### Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have the NODESCRIPTOR option. See the Programming Guide for more details.

---

**IBM2160I S**      All members of the input structure to the **BUILTIN** name built-in function must have computational type.

---

### Explanation

The XMLCHAR built-in function cannot be applied to structures containing noncomputational types.

---

**IBM2161I S**      The input structure to the **BUILTIN** name built-in function must not be a UNION or contain any UNIONS.

---

### Explanation

The XMLCHAR built-in function cannot be applied to unions or to structures containing unions.

---

**IBM2162I S**      The input structure to the **BUILTIN** name built-in function must not contain any GRAPHIC elements.

---

### Explanation

The XMLCHAR built-in function cannot be applied to structures containing any GRAPHIC data.

---

**IBM2163I S**      The input structure to the **BUILTIN** name built-in function must not contain any UTF-16 elements.

---



## Explanation

The XMLCHAR built-in function cannot be applied to structures containing any WIDECHAR or WIDEPIC data.

---

<b>IBM2164I S</b>	<b>The input structure to the <i>BUILTIN</i> name built-in function must not contain any unnamed substructures.</b>
-------------------	---

---

## Explanation

The XMLCHAR built-in function cannot be applied to structures containing substructures using an asterisk as a name.

---

<b>IBM2165I S</b>	<b>PRV support is provided only if the <i>LIMITS(EXTNAME(7))</i> option is in effect.</b>
-------------------	---

---

## Explanation

Support for long external names is incompatible with support for using the PRV to address CONTROLLED variables.

---

<b>IBM2166I S</b>	<b>PRV support is provided only if the <i>NORENT</i> option is in effect.</b>
-------------------	---

---

## Explanation

Support for the RENT option is incompatible with support for using the PRV to address CONTROLLED variables.

---

<b>IBM2167I S</b>	<b>PRV support is provided only if the <i>CMPAT(V2)</i> or <i>CMPAT(V3)</i> option is in effect.</b>
-------------------	--

---

## Explanation

Support for the CMPAT(LE) option is incompatible with support for using the PRV to address CONTROLLED variables.

---

<b>IBM2168I S</b>	<b>Support for EBCDIC encoding with <i>JSON</i> is provided only if both the <i>DFT(EBCDIC)</i> is in effect and the option <i>CODEPAGE</i> specifies an EBCDIC codepage.</b>
-------------------	---

---

## Explanation

The JSON(ENCODING(EBCDIC)) option is supported when either the program's data contents or the program's variable names are held in ASCII.

---

<b>IBM2170I S</b>	<b>Too many INTERNAL CONTROLLED variables.</b>
-------------------	--

---

## Explanation

When using the PRV to address CONTROLLED variables, there may be no more than 568 INTERNAL CONTROLLED variables.

---

<b>IBM2171I S</b>	<b>Under the <i>NOWRITABLE</i> option, no <i>FETCHABLE ENTRY</i> may be declared at the <i>PACKAGE</i> level.</b>
-------------------	---

---

## Explanation

Under the NOWRITABLE option, every FETCHABLE ENTRY constant must be declared inside a PROCEDURE.

---

<b>IBM2172I S</b>	<b>Under the <i>NOWRITABLE</i> option, no <i>FILE CONSTANT</i> may be declared at the <i>PACKAGE</i> level.</b>
-------------------	---

---

## Explanation

Under the NOWRITABLE option, every FILE CONSTANT must be declared inside a PROCEDURE.

---

<b>IBM2173I S</b>	<b>Under the <i>NOWRITABLE</i> option, no <i>CONTROLLED</i> may be declared at the <i>PACKAGE</i> level.</b>
-------------------	--

---

## Explanation

Under the NOWRITABLE option, every CONTROLLED variable must be declared inside a PROCEDURE.

---

<b>IBM2174I S</b>	<b>Result of <i>REPLACEBY2</i> is too long.</b>
-------------------	---

---

## Explanation

The length of the string literal produced by applying the REPLACEBY2 built-in function to 3 literals must not be greater than the maximum allowed for a character literal.

---

<b>IBM2175I S</b>	<b>The second and third arguments to <i>REPLACEBY2</i> must be restricted expressions.</b>
-------------------	--

---

## Explanation

The REPLACEBY2 built-in function currently supports only second and third arguments that have a length and value known at compile time.

---

<b>IBM2176I S</b>	<b>The result of the <i>BUILTIN</i> name built-in function would require more than 32767 bytes.</b>
-------------------	---

---

## Explanation

The HEX and HEXIMAGE built-in functions cannot be applied to strings using more than 16383 bytes of storage.

---

<b>IBM2177I S</b>	<b>The file <i>filename</i> is a PDS member and hence cannot be used for SYSADATA.</b>
-------------------	--

---

## Explanation

The named file is the file intended to be used as the SYSADATA file, but such a file must not be a member of a PDS.

---

<b>IBM2178I S</b>	<b>INCLUDE statements are not supported when the LINEDIR option is in effect.</b>
-------------------	---

---

## Explanation

When the LINEDIR option is in effect, your source must contain no INCLUDE statements.

---

<b>IBM2179I S</b>	<b>There is too little room between the margins for the LINE directive. The PPTRACE option will be turned off.</b>
-------------------	--

---

## Explanation

The %LINE directive generated by the PPTRACE must fit on one line. You must either make the margins wide enough to allow this or make the source file names short enough.

---

<b>IBM2180I S</b>	<b>Use of the KEYED DIRECT file <i>filename</i> in a keyword statement without a KEY/KEYFROM clause is invalid.</b>
-------------------	---

---

## Explanation

Any input/output operation using a KEYED DIRECT file must include the key of the record to which the operation is to be applied.

---

<b>IBM2181I S</b>	<b>First argument to <i>BUILTIN name</i> built-in function must have type CHARACTER.</b>
-------------------	--

---

## Explanation

This applies to the PICSPEC built-in function, for example.

---

<b>IBM2182I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN name</i> built-in function must be a constant.</b>
-------------------	--

---

## Explanation

The specified argument to the named built-in function must be a restricted expression. This applies to second argument to the PICSPEC built-in function, for example.

---

<b>IBM2183I S</b>	<b>The first argument to <i>BUILTIN name</i> built-in function must have constant length equal to that of the second argument.</b>
-------------------	--

---

## Explanation

This applies to the PICSPEC built-in function, for example.

---

<b>IBM2184I S</b>	<b>Compiler input files must have less than 1000000 lines.</b>
-------------------	--

---

## Explanation

Break up the source files into smaller files.

---

<b>IBM2185I S</b>	<b>Argument to <i>BUILTIN name</i> built-in function must have type REAL DECIMAL FLOAT, and the DFP option must be in effect.</b>
-------------------	---

---

## Explanation

This applies to the ISFINITE and similar built-in functions.

---

<b>IBM2186I S</b>	<b><i>BUILTIN name</i> is not supported for DFP.</b>
-------------------	--

---

## Explanation

The named built-in function is not supported for float using DFP. This message applies, for instance, to the SQRTF built-in functions

---

<b>IBM2187I S</b>	<b>The exponent in the literal <i>value</i> is too large for DECIMAL FLOAT with precision <i>precision</i>.</b>
-------------------	---

---

## Explanation

A DFP literal value when adjusted to have no decimal point (e.g. 3.14E0 would be adjusted to 314E-2) must have an exponent no larger than the maximum for its precision. For precision <= 7, the maximum is 90. For 7 < precision <= 16, the maximum is 369. For 16 < precision, the maximum is 6111.

---

<b>IBM2188I S</b>	<b>The exponent in the literal <i>value</i> is too small for DECIMAL FLOAT with precision <i>precision</i>.</b>
-------------------	---

---

## Explanation

A DFP literal value when adjusted to have no decimal point (e.g. 3.14E0 would be adjusted to 314E-2) must have an exponent no smaller than the minimum for its precision. For precision <= 7, the minimum is -95. For 7 < precision <= 16, the minimum is -383. For 16 < precision, the minimum is -6143.

---

<b>IBM2189I S</b>	<b>Under CMPAT(V2) and CMPAT(LE), bounds must not be greater than +2147483647.</b>
-------------------	--

---

## Explanation

Under CMPAT(V2) and CMPAT(LE), bounds must be between -2147483648 and +2147483647.

---

<b>IBM2190I S</b>	<b>Under CMPAT(V2) and CMPAT(LE), bounds must not be less than -2147483648.</b>
-------------------	---

---

## Explanation

Under CMPAT(V2) and CMPAT(LE), bounds must be between -2147483648 and +2147483647.

---

<b>IBM2191I S</b>	<b>No valid character specified in the <i>option</i> option.</b>
-------------------	--

---

## Explanation

You must specify at least one valid character in each of the OR, NOT and QUOTE or NAMES compiler options.

---

<b>IBM2192I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN</i> name built-in function must have a BYVALUE POINTER as parameter number <i>parameter-number</i>.</b>
-------------------	--

---

## Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE POINTER in the specified parameter position. See the Programming Guide for more details.

---

<b>IBM2193I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN</i> name built-in function must have a BYVALUE NATIVE FIXED BIN(31) as parameter number <i>parameter-number</i>.</b>
-------------------	---

---

## Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have

a BYVALUE NATIVE FIXED BIN(31) in the specified parameter position. See the Programming Guide for more details.

---

<b>IBM2194I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN</i> name built-in function must have a BYADDR POINTER as parameter number <i>parameter-number</i>.</b>
-------------------	---

---

## Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYADDR POINTER in the specified parameter position. See the Programming Guide for more details.

---

<b>IBM2195I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN</i> name built-in function must have a BYADDR NATIVE FIXED BIN(31) as parameter number <i>parameter-number</i>.</b>
-------------------	--

---

## Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYADDR NATIVE FIXED BIN(31) in the specified parameter position. See the Programming Guide for more details.

---

<b>IBM2196I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN</i> name built-in function must have a BYVALUE ALIGNED BIT(8) as parameter number <i>parameter-number</i>.</b>
-------------------	---

---

## Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYVALUE ALIGNED BIT(8) in the specified parameter position. See the Programming Guide for more details.

---

<b>IBM2197I S</b>	<b>Argument to <i>BUILTIN</i> name built-in function must have type CHAR or WIDECHAR.</b>
-------------------	---

---

## Explanation

This applies to the ULENGTH built-in function, for example.

---

<b>IBM2198I S</b>	<b>First argument to <i>BUILTIN</i> name built-in function must have type CHAR or WIDECHAR.</b>
-------------------	---

---

## Explanation

This applies to the UPOS and UWIDTH built-in functions, for example.

---

**IBM2199I S**      **The run-time option XPLINK(ON) must be in effect if object code is to be generated.**

## Explanation

The compiler backend requires the XPLINK(ON) option to be in effect.

---

**IBM2200I S**      **DFP conversion from *source type* to *target type* failed with an operation exception. The most likely cause for this is lack of DFP hardware.**

## Explanation

The indicated conversion had a DFP source, target, or both but failed at compile time with an operation exception. These conversions require that the machine on which the compilation occurs have DFP hardware installed.

---

**IBM2201I S**      **First argument to *BUILTIN name* built-in function must have type REAL DECIMAL FIXED, or REAL DECIMAL FLOAT, and in the latter case, the DFP option must be in effect.**

## Explanation

This applies to the ROUNDDEC and similar built-in functions.

---

**IBM2202I S**      **Use of the *BUILTIN name* built-in function requires ARCH(*level*) or greater.**

## Explanation

This applies to various built-in functions on some platforms. For example, on z/OS, MEMCU4\* and MEMCU\*4 require at least ARCH(7).

---

**IBM2203I S**      **The VALUE attribute may be used on a structure member only if it is used on all base members of that structure.**

## Explanation

If any leaf structure member has the VALUE attribute, then all must have the VALUE attribute.

---

**IBM2204I S**      **The VALUE attribute may be used on a structure member only if no**

**storage attribute is specified for the structure.**

## Explanation

It is invalid to specify the VALUE attribute for a member of a structure if the structure has a storage attribute such as BASED, CONTROLLED, etc.

---

**IBM2205I S**      **The VALUE attribute may be used on a structure member only if no dimension attributes are specified for its parents.**

## Explanation

It is invalid to specify the VALUE attribute for a member of a structure that has inherited dimensions.

---

**IBM2206I S**      **The VALUE attribute conflicts with the DIMENSION attribute.**

## Explanation

It is invalid to specify the VALUE attribute for an array.

---

**IBM2207I S**      **The VALUE attribute may be used on a structure member only if no parent has the UNION attribute.**

## Explanation

It is invalid to specify the VALUE attribute for a member of a union.

---

**IBM2208I S**      **Structure references that contain the VALUE attribute are invalid.**

## Explanation

Only the leaf elements of a structure containing elements with the VALUE attribute may be referenced, and only the individual elements of an array of VALUES may be referenced.

---

**IBM2209I S**      **Use of nonconstant extents in BASED variables without REFER is invalid except on scalars.**

## Explanation

Extents in BASED variables must all be constant except where the REFER option is used - unless the variable is a scalar. So, the first declare below is valid, while the second is invalid.

```
decl x based char(n);
decl y(n,m) based fixed bin(31);
```

---

<b>IBM2210I S</b>	<b>The VALUE type function cannot be applied to <i>type name</i> since that structure has no members with an INITIAL attribute.</b>
-------------------	---

---

### Explanation

The VALUE type function can be applied only to those structure types that have at least one member with an INITIAL attribute.

---

<b>IBM2211I S</b>	<b>Shift-out code has no closing shift-in code before the right margin.</b>
-------------------	---

---

### Explanation

Every DBCS shift-out code between the margins must have a matching DBCS shift-in code also between the margins.

---

<b>IBM2212I S</b>	<b>Argument to the <i>BUILTIN name</i> built-in function must be a structure.</b>
-------------------	---

---

### Explanation

The argument to the named built-in subroutine must be a structure.

---

<b>IBM2213I S</b>	<b>Block contains too many label arrays.</b>
-------------------	--

---

### Explanation

Procedures and begin blocks must contain fewer than 2048 label arrays.

---

<b>IBM2214I S</b>	<b><i>Attribute</i> is invalid on structure parents.</b>
-------------------	--

---

### Explanation

The XMLATTR and XMLOMIT attributes may be used only on base structure elements.

---

<b>IBM2215I S</b>	<b><i>Attribute</i> is invalid on unnamed structure elements.</b>
-------------------	---

---

### Explanation

The XMLATTR and XMLOMIT attributes may be used only on named structure elements.

---

<b>IBM2216I S</b>	<b><i>Attribute</i> is invalid on arrays.</b>
-------------------	---

---

### Explanation

The XMLATTR and XMLOMIT attributes may be used only on scalar structure elements.

---

<b>IBM2217I S</b>	<b>XMLATTR is invalid if the previous element at that logical level does not also have the XMLATTR attribute.</b>
-------------------	---

---

### Explanation

The XMLATTR attribute may be used on a structure element only if all its previous sister elements at the same logical level also had the XMLATTR attribute.

---

<b>IBM2218I S</b>	<b><i>Attribute</i> is invalid on non-native FLOAT elements.</b>
-------------------	--

---

### Explanation

The XMLOMIT attribute may not be used on FLOAT elements using a data representation not supported by the hardware.

---

<b>IBM2219I S</b>	<b>Parameters declared as INONLY must not contain any elements declared with the ASSIGNABLE attribute.</b>
-------------------	--

---

### Explanation

If a parameter is declared as INONLY, then the ASSIGNABLE attribute is invalid on it and all of the elements it contains.

---

<b>IBM2220I S</b>	<b>Parameters declared as OUTONLY must contain at least one element declared with the ASSIGNABLE attribute.</b>
-------------------	---

---

### Explanation

If a parameter is declared as OUTONLY, then the NONASSIGNABLE attribute must not be specified on all of its elements.

---

<b>IBM2221I S</b>	<b>A non-constant array extent in a BASED variable is invalid if the array has more than one dimension.</b>
-------------------	---

---

### Explanation

The use of a non-constant extent in BASED variable without using REFER is limited. In an array, its use requires that the array has only one dimension.

---

<b>IBM2222I S</b>	<b>A non-constant array extent in a BASED variable is invalid if the array has a non-constant lower bound.</b>
-------------------	--

---

## Explanation

The use of non-constant extents in BASED variables without using REFER is limited. In an array, its use requires that the array has a constant lower bound.

---

<b>IBM2223I S</b>	<b>A non-constant array extent in a BASED structure is invalid if any other fields in the structure have non-constant extents.</b>
-------------------	--

---

## Explanation

The use of non-constant extents in BASED variables without using REFER is limited. In an array that is part of a structure, its use requires that no other field in the structure have non-constant extents.

---

<b>IBM2224I S</b>	<b>A non-constant AREA, BIT, GRAPHIC, or WIDECHAR extent in a BASED variable is invalid if the variable is an array element or part of a structure.</b>
-------------------	---

---

## Explanation

The use of non-constant extents in BASED variables without using REFER is limited. In an AREA, BIT, GRAPHIC or WIDECHAR extent, its use requires that the AREA or string is a scalar.

---

<b>IBM2225I S</b>	<b>A non-constant CHARACTER extent in a BASED variable is invalid if the string is ALIGNED and either VARYING or VARYING4.</b>
-------------------	--

---

## Explanation

The use of non-constant extents in BASED variables without using REFER is limited. In a CHARACTER extent, its use requires that the string be either UNALIGNED, NONVARYING or VARYINGZ.

---

<b>IBM2226I S</b>	<b>A non-constant array extent in a BASED variable is invalid if there are any sibling fields after the array or any of the array's parents.</b>
-------------------	--

---

## Explanation

The use of non-constant extents in BASED variables without using REFER is limited. In an array, its use requires that the array and the array's parents have no sibling fields.

---

<b>IBM2227I S</b>	<b>A non-constant CHARACTER extent in a BASED structure is invalid if the string is a member of an array of structures.</b>
-------------------	---

---

## Explanation

The use of non-constant extents in BASED variables without using REFER is limited. In a CHARACTER extent, its use requires that the string not be part of an array.

---

<b>IBM2228I S</b>	<b>A non-constant CHARACTER extent in a BASED structure is invalid unless the string is the last field in the structure and not part of a union.</b>
-------------------	--

---

## Explanation

The use of non-constant extents in BASED variables without using REFER is limited. In a CHARACTER extent, its use requires that the string be the last element in the structure and not part of a union.

---

<b>IBM2229I S</b>	<b>Argument number <i>argument number</i> to the <i>BUILTIN name</i> built-in function must have the attributes NONVARYING BIT or REAL FIXED with scale factor zero.</b>
-------------------	--

---

## Explanation

This applies, for example, to the ISLL, IAND, etc built-in functions.

---

<b>IBM2230I S</b>	<b>The argument to the <i>BUILTIN name</i> built-in function must have the attributes NONVARYING BIT or REAL FIXED with scale factor zero.</b>
-------------------	--

---

## Explanation

This applies, for example, to the IPOPCNT, ICLZ, etc built-in functions.

---

<b>IBM2231I S</b>	<b>The <i>BUILTIN name</i> built-in function is supported only with the native character set.</b>
-------------------	---

---

## Explanation

The XMLCHAR built-in function cannot be used with DFT(EBCDIC) on Windows or AIX nor with DFT(ASCII) on the host.

---

<b>IBM2232I S</b>	<b>There must be only one target in a BY DIMACROSS assignment.</b>
-------------------	--

---

## Explanation

Multiple targets are not permitted in BY DIMACROSS assignments. For example, the following is invalid.

```
dcl 1 a, 2 a1 fixed bin, 2 a2 fixed bin;
dcl 1 b like a;
dcl 1 c(100) dimacross like a;

a,b = c, by dimacross(jx);
```

**IBM2233I S**      **The target in a BY DIMACROSS assignment must be a structure reference.**

### Explanation

The target in a BY DIMACROSS assignment must not be an array of structures or a scalar. For example, the following is invalid.

```
dcl 1 a(100), 2 a1 fixed bin, 2 a2 fixed bin;
dcl 1 b(100) dimacross, 2 b1 fixed bin, 2 b2 fixed bin;

a = b, by dimacross(1);
```

**IBM2234I S**      **No arrays are permitted in the source in a BY DIMACROSS assignment.**

### Explanation

The source in a BY DIMACROSS assignment must not include any array references.

**IBM2235I S**      **In a BY DIMACROSS assignment, the immediate children of any structure not declared with DIMACROSS must not be arrays.**

### Explanation

The immediate children of a structure used in a BY DIMACROSS assignment must be scalars or substructures, but not arrays unless the structure was declared with the DIMACROSS attribute. For example, the following is invalid.

```
dcl 1 a, 2 a1(100) fixed bin, 2 a2(100) fixed bin;
dcl 1 b(100) dimacross, 2 b1 fixed bin, 2 b2 fixed bin;

a = b, by dimacross(1);
```

**IBM2236I S**      **BUILTIN name argument must have the DIMACROSS attribute.**

### Explanation

The named built-in function is valid only when applied to a reference to a variable declared with the DIMACROSS attribute.

**IBM2237I S**      **The third argument to the ALLCOMPARE built-in function must be a CHAR(2) constant.**

### Explanation

The third argument to the ALLCOMPARE built-in function must be a restricted expression with the attributes CHAR(2) NONVARYING.

**IBM2238I S**      **The third argument to the ALLCOMPARE built-in function must specify the name of a comparison operator.**

### Explanation

When uppercased, the third argument to the ALLCOMPARE built-in function must be one of 'EQ', 'LT', 'LE', 'GE', 'GT', or 'NE'.

**IBM2239I S**      **Invalid use of unspecified STRUCT type *type name*.**

### Explanation

If a DEFINE STRUCT statement specifies no member names, then any attempt to dereference the type is invalid.

**IBM2240I S**      **Arithmetic operations are not allowed on handles for unspecified structure definitions.**

### Explanation

The size of an unspecified structure is unknown, and hence all arithmetic operations on handles for it are ill-defined.

**IBM2241I S**      **The argument to the type function *type function* must be a specified structure type name.**

### Explanation

The argument to the named type function must be the name of a structure type that was fully specified.

**IBM2242I S**      **Subtraction of HANDLE from HANDLE is invalid unless both point to the same type.**

## Explanation

If h1 is a handle for structure type t1 and h2 is a handle for structure type t2, the h1-h2 is invalid unless t1 and t2 are the same.

---

<b>IBM2243I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. RETURNS attributes do not match.</b>
-------------------	---

---

## Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2244I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. BYVALUE/BYADDR attributes in RETURNS do not match.</b>
-------------------	---

---

## Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2245I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. LINKAGE values do not match.</b>
-------------------	---

---

## Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2246I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. OPTIONS values do not match.</b>
-------------------	---

---

## Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name.

That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2247I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. Parameter counts do not match.</b>
-------------------	---

---

## Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2248I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. BYVALUE/BYADDR attributes in parameter <i>parameter-number</i> do not match.</b>
-------------------	---

---

## Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2249I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. Number of dimensions for parameter <i>parameter-number</i> do not match.</b>
-------------------	---

---

## Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2250I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. Lower bounds for parameter <i>parameter-number</i> do not match.</b>
-------------------	---

---

## Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name.



That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2251I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. Upper bounds for parameter <i>parameter-number</i> do not match.</b>
-------------------	---

---

### Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2252I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. Alignment of parameter <i>parameter-number</i> does not match.</b>
-------------------	---

---

### Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2253I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. Number and attributes of structure members in parameter <i>parameter-number</i> do not match.</b>
-------------------	--

---

### Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2254I S</b>	<b>The attributes derived from the PROCEDURE statement for the ENTRY constant <i>variable name</i> do not match those in its explicit declaration. Attributes of parameter <i>parameter-number</i> do not match.</b>
-------------------	--

---

### Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

<b>IBM2255I S</b>	<b>The argument to the <i>BUILTIN name</i> built-in function must be numeric, BIT, or CHARACTER.</b>
-------------------	--

---

### Explanation

This message applies to the UTF8 built-in function. GRAPHIC and non-computational arguments are not allowed.

---

<b>IBM2256I S</b>	<b>The result of the <i>BUILTIN name</i> built-in function would have a length greater than the the maximum allowed for a CHARACTER string.</b>
-------------------	---

---

### Explanation

Conversion of CHAR or WCHAR to UTF-8 can produce a result string that is longer than the source string because some CHAR(1) and WCHAR(1) values can produce CHAR(2) or CHAR(3) strings when converted to UTF-8. If there are too many of these values in the source string then the target string would have a length greater than the the maximum allowed for a CHARACTER string.

---

<b>IBM2257I S</b>	<b>The argument to the <i>BUILTIN name</i> built-in function must hold valid UTF-16.</b>
-------------------	--

---

### Explanation

This message applies to the UTF8 built-in function.

---

<b>IBM2258I S</b>	<b>The argument to the <i>BUILTIN name</i> built-in function must have type CHARACTER.</b>
-------------------	--

---

### Explanation

This message applies to the UTF8TOCHAR and UTF8TOWCHAR built-in functions.

---

<b>IBM2259I S</b>	<b>The argument to the <i>BUILTIN name</i> built-in function must contain valid UTF-8.</b>
-------------------	--

---

### Explanation

This message applies to the UTF8TOCHAR and UTF8TOWCHAR built-in functions.

---

**IBM2260I S**      **INITIAL expressions in DEFINE STRUCT must not depend on any address values.**

---

### Explanation

These expressions must be simple restricted expressions. For example, ENTRY, FILE and LABEL constants must not be used in these INITIAL expressions

---

**IBM2261I S**      **Overpunch and currency characters are not allowed in WIDEPIC specifications.**

---

### Explanation

These characters are allowed in PICTURE specifications, but not in WIDEPIC.

---

**IBM2262I S**      **A and X characters are not allowed in WIDEPIC specifications.**

---

### Explanation

These characters are allowed in PICTURE specifications, but not in WIDEPIC.

---

**IBM2263I S**      **REFER objects must not be COMPLEX WIDEPIC.**

---

### Explanation

REFER objects should have the REAL attribute.

---

**IBM2264I S**      **The *attribute* attribute is invalid in a LOCATES descriptor.**

---

### Explanation

The LOCATES descriptor may not specify a structure, union or array. The following code example is invalid:

```
      dcl b offset(a) locates( 1 union, 2 ptr, 2
ptr );
```

---

**IBM2265I S**      **Extents in LOCATES descriptors must be constants.**

---

### Explanation

In LOCATES descriptors, any string length and AREA size must be specified with a restricted expression that has computational type.

---

**IBM2266I S**      **The argument to *BUILTIN name* built-in function must have the LOCATES attribute.**

---

### Explanation

This rule applies to the LOCVAL and similar built-in functions.

---

**IBM2267I S**      **The first argument to *BUILTIN name* built-in function must have the LOCATES attribute.**

---

### Explanation

This rule applies to the LOCNEWSPACE and similar built-in functions.

---

**IBM2268I S**      **Argument to the LOCVAL pseudovisible must have the LOCATES attribute.**

---

### Explanation

The LOCVAL pseudovisible can be applied only to variables with the LOCATES attribute.

---

**IBM2269I S**      **LOCATES attribute is valid only with OFFSET.**

---

### Explanation

The LOCATES attribute cannot be used on any other types.

---

**IBM2270I S**      **Only one description is allowed in a LOCATES descriptor.**

---

### Explanation

A located type can specify only one value. The following declaration is not correct:

```
      dcl b offset(a) locates( ptr, ptr );
```

---

**IBM2271I S**      **The first argument to *BUILTIN name* built-in function must be a scalar reference.**

---

### Explanation

This rule applies to the LOCNEWSPACE and similar built-in functions.

---

**IBM2272I S**      **The second argument to *BUILTIN name* built-in function must be a scalar reference.**

---

### Explanation

This rule applies to the LOCNEWVALUE and similar built-in functions.

---

<b>IBM2273I S</b>	<b>The <i>OFFSET</i> argument to <i>BUILTIN name</i> built-in function must have an <i>AREA</i> qualification.</b>
-------------------	--

---

### Explanation

This rule applies to the *LOCVAL* and similar built-in functions.

---

<b>IBM2274I S</b>	<b>The second argument to <i>BUILTIN name</i> built-in function must have the <i>LOCATES</i> attribute.</b>
-------------------	---

---

### Explanation

This rule applies to the *LOCNEWVALUE* and similar built-in functions.

---

<b>IBM2275I S</b>	<b>Third argument to <i>BUILTIN name</i> built-in function must have type <i>AREA</i>.</b>
-------------------	--

---

### Explanation

This rule applies to the *LOCNEWVALUE* built-in functions.

---

<b>IBM2276I S</b>	<b>The argument to <i>BUILTIN name</i> built-in function must have the <i>LOCATES</i> attribute or contain subelements with the <i>LOCATES</i> attribute.</b>
-------------------	---

---

### Explanation

This rule applies to the *LOCSTG* and similar built-in functions.

---

<b>IBM2277I S</b>	<b><i>INCLUDE</i> statements are not allowed under <i>NOINCLUDE</i>.</b>
-------------------	--

---

### Explanation

Under the *NOINCLUDE* compiler option, *%INCLUDE* statements are valid only if the *MACRO* preprocessor is used.

---

<b>IBM2278I S</b>	<b>Source is not valid UTF-8. The bytes (with hex value <i>byte-value</i>) starting at index <i>column-number</i> are not valid UTF-8.</b>
-------------------	--

---

### Explanation

The source file contains lines that would be rejected by the *UVALID* built-in function.

---

<b>IBM2279I S</b>	<b><i>option</i> option contains invalid UTF-8.</b>
-------------------	---

---

### Explanation

The specified option contains values that would be rejected by the *UVALID* built-in function.

---

<b>IBM2280I S</b>	<b>The corresponding characters in the two <i>NAMES</i> strings must have the same length.</b>
-------------------	--

---

### Explanation

In the *NAMES*( 'abc', 'xyz' ) option, each of the UTF-8 characters in the first string must have a corresponding character of the same UTF-8 length in the second string.

---

<b>IBM2281I S</b>	<b>The first argument to <i>BUILTIN name</i> built-in function must have computational type or ordinal type.</b>
-------------------	--

---

### Explanation

An expression contains the named built-in function with the specified argument having a noncomputational type that is either not an ordinal type. This message applies to the *INLIST* and *BETWEEN* built-in functions.

---

<b>IBM2282I S</b>	<b><i>REINIT</i> reference must be a level 1 item.</b>
-------------------	--

---

### Explanation

In the statement *REINIT* x, x must not be a structure or union member.

---

<b>IBM2283I S</b>	<b><i>REINIT</i> references must be <i>BASED</i>, <i>AUTO</i>, <i>CTL</i> or <i>STATIC</i>.</b>
-------------------	---

---

### Explanation

In the statement *REINIT* x, x must not be *DEFINED*, constant, or a parameter.

---

<b>IBM2284I S</b>	<b>The first and second arguments to the <i>BUILTIN name</i> built-in function must have matching types.</b>
-------------------	--

---

### Explanation

This message applies to the *LOCNEWVALUE* built-in functions. In *LOCNEWVALUE*( x, y ), if y has the attribute *LOCATES*( t ) where t is an *ORDINAL* or *STRUCT* type, then x must have the same type.

---

<b>IBM2285I S</b>	<b>The argument to the <i>BUILTIN name</i> built-in function must have the attributes <i>UNSIGNED REAL FIXED BIN</i>(64,0).</b>
-------------------	---

---

## Explanation

This applies, for example, to the PLISTCK and PLISTCKF built-in subroutines.

---

<b>IBM2286I S</b>	<b>The argument to the <i>BUILTIN</i> name built-in function must have the attributes CHAR NONVARYING and length <i>length</i>.</b>
-------------------	---

---

## Explanation

This applies, for example, to the PLISTCKE built-in subroutine where the argument must have length 16.

---

<b>IBM2287I S</b>	<b>Argument number <i>argument</i> number to the <i>BUILTIN</i> name built-in function must contain only standard computational types.</b>
-------------------	--

---

## Explanation

The JsonGetValue and similar built-in functions cannot be applied to aggregates or scalars containing noncomputational types or containing any COMPLEX numeric or any FIXED numeric with a scale factor that is either negative or larger than its precision.

---

<b>IBM2288I S</b>	<b>Argument number <i>argument</i> number to the <i>BUILTIN</i> name built-in function must not be a UNION or contain any UNIONS.</b>
-------------------	---

---

## Explanation

The JsonGetValue and similar built-in functions cannot be applied to unions or to structures containing unions.

---

<b>IBM2289I S</b>	<b>Argument number <i>argument</i> number to the <i>BUILTIN</i> name built-in function must not contain any element with type <i>attribute</i>.</b>
-------------------	---

---

## Explanation

The JsonGetValue and similar built-in functions cannot be applied to aggregates or scalars containing GRAPHIC data.

---

<b>IBM2290I S</b>	<b>Member <i>member-number</i> in the event structure argument to the <i>BUILTIN</i> name built-in function must have a BYADDR NATIVE FIXED BIN(63) as parameter number <i>parameter-number</i>.</b>
-------------------	--

---

## Explanation

The indicated element of the structure supplying the event handlers for the SAX parser must have a BYADDR NATIVE FIXED BIN(63) in the specified parameter position. See the Programming Guide for more details.

---

<b>IBM2291I S</b>	<b><i>attribute</i> precision is invalid.</b>
-------------------	---

---

## Explanation

In 64-bit mode, the only valid values for the POINTER precision are 32 and 64. Otherwise the only valid value is 32.

---

<b>IBM2292I S</b>	<b>Target in <i>statement</i> statement must not be the name of a PROC or ENTRY statement.</b>
-------------------	--

---

## Explanation

The target in a FETCH or RELEASE statement must be outside the current compilation unit.

---

<b>IBM2293I S</b>	<b>The <i>BUILTIN</i> name built-in function is not supported under CMPAT(V1).</b>
-------------------	--

---

## Explanation

CMPAT(V2), CMPAT(V3) or CMPAT(LE) must be used when compiling any code using this built-in function.

---

<b>IBM2294I S</b>	<b>A value greater than 64K for the <i>STRING</i> suboption of the <i>LIMITS</i> option is valid only under CMPAT(V3) and CMPAT(LE).</b>
-------------------	--

---

## Explanation

Strings longer than 65535 are not supported under CMPAT(V1) or CMPAT(V2).

---

<b>IBM2295I S</b>	<b>A value greater than 32K for the <i>STRING</i> suboption of the <i>LIMITS</i> option is valid only under BIFPREC(31).</b>
-------------------	--

---

## Explanation

Strings longer than 32767 are not supported under BIFPREC(15).

---

<b>IBM2296I S</b>	<b>Argument number <i>argument</i> number to <i>BUILTIN</i> name built-in function must have the same ordinal type as the first argument.</b>
-------------------	---

---

## Explanation

An expression contains the named built-in function with the specified argument having either a non-ordinal type or an ordinal type that is not the same ordinal type as the first argument. This message applies to the INLIST and BETWEEN built-in functions.

---

<b>IBM2297I S</b>	<b>The <i>BUILTIN</i> name built-in function is supported only under LP(64).</b>
-------------------	--

---

## Explanation

Built-in functions such as ALLOC31 are supported only under z/OS and only under the LP(64) option.

---

<b>IBM2298I S</b>	<b>The <i>BUILTIN</i> name built-in function is supported only when the compiler option CHECK(STORAGE) is used.</b>
-------------------	---

---

## Explanation

Built-in functions such as ALLOCSIZE are supported only under the CHECK(STORAGE) compiler option.

---

<b>IBM2299I S</b>	<b>No value can fall in the interval defined by the second and third arguments to the <i>BUILTIN</i> name built-in function.</b>
-------------------	--

---

## Explanation

The values a and b in BETWEEN(x,a,b) must satisfy a <= b. The values a and b in BETWEENEXCLUSIVE(x,a,b) must satisfy a < b, and the same is true for BETWEENLEFTEXCLUSIVE and BETWEENRIGHTEXCLUSIVE.

---

<b>IBM2300I S</b>	<b>The compiler was disabled in the IFAPRDxx parmlib member. The compilation will terminate without further processing.</b>
-------------------	---

---

## Explanation

The SMF registration of the compiler failed because it has been disabled in the IFAPRDxx parmlib member.

---

<b>IBM2301I S</b>	<b>The IFAEDREG registration of the compiler failed with return code <i>return code</i> . The compilation will terminate without further processing.</b>
-------------------	--

---

## Explanation

The SMF registration of the compiler failed with the indicated return code.

---

<b>IBM2302I S</b>	<b>The option <i>option</i> is not supported under LP(64).</b>
-------------------	--

---

## Explanation

The specified option is not supported under LP(64). This is true, for example, of the SYSTEM(IMS) option.

---

<b>IBM2303I S</b>	<b><i>codepage</i> is not a supported codepage.</b>
-------------------	---

---

## Explanation

The specified value is not a supported codepage. See the Programming Guide for a list of the supported codepages.

---

<b>IBM2304I S</b>	<b>The <i>attribute</i> attribute is not supported under CMPAT(V1).</b>
-------------------	---

---

## Explanation

CMPAT(V2), CMPAT(V3) or CMPAT(LE) must be used when compiling any code using this attribute.

---

<b>IBM2305I S</b>	<b>The ASSERT COMPARE operator must be a CHAR(2) constant.</b>
-------------------	--

---

## Explanation

If an operator is specified in an ASSERT COMPARE statement, it must be a restricted expression with the attributes CHAR(2) NONVARYING.

---

<b>IBM2306I S</b>	<b>The ASSERT COMPARE operator must specify the name of a comparison operator.</b>
-------------------	--

---

## Explanation

If an operator is specified in an ASSERT COMPARE statement, it must be one of 'EQ', 'LT', 'LE', 'GE', 'GT', or 'NE'.

---

<b>IBM2307I S</b>	<b>The first argument to the <i>BUILTIN</i> name built-in function must be a suitable one-dimensional array.</b>
-------------------	--

---

## Explanation

The array argument to the named built-in function must have exactly one dimension. For BINSEARCH and QUICKSORT, the array must consist of scalars. This message applies to the BINSEARCH, BINSEARCHX, QUICKSORT, and QUICKSORTX built-in functions.

---

<b>IBM2308I S</b>	<b>The first argument to the <i>BUILTIN</i> name built-in function must be <b>ALIGNED</b> if <b>NONVARYING BIT</b>.</b>
-------------------	---

---

## Explanation

If the first argument to the named built-in function is NONVARYING BIT, then it must be ALIGNED. This message applies to the BINSEARCH, BINSEARCHX, QUICKSORT, and QUICKSORTX built-in functions.

---

<b>IBM2309I S</b>	<b>Comparison in <i>BUILTIN name</i> built-in function is unsupported.</b>
-------------------	--

---

## Explanation

This message applies to the BINSEARCH built-in function and similar functions. The array and the search argument must be both string or REAL numeric, both ordinals of the same ordinal type, both pointers, or both handles to the same structure type.

---

<b>IBM2310I S</b>	<b>The compare function passed to the <i>BUILTIN name</i> built-in function must be a LIMITED ENTRY, must return BYVALUE a NATIVE FIXED BIN(31), must have exactly two BYVALUE POINTER arguments, and must have the OPTLINK linkage.</b>
-------------------	--

---

## Explanation

This message applies to the third argument to the BINSEARCHX built-in function and similar functions. This argument is the compare function to be invoked to compare elements during the binary search. It must be a LIMITED ENTRY (and hence must not be a nested PROCEDURE) and must have the other properties listed in the message.

---

<b>IBM2311I S</b>	<b>Labels are not allowed on the END statement for a PACKAGE.</b>
-------------------	---

---

## Explanation

Labels must not be applied to the END statement for a PACKAGE.

---

<b>IBM2312I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN name</i> built-in function must be a scalar expression.</b>
-------------------	---

---

## Explanation

An expression contains the named built-in function when the specified argument is an aggregate expression.

---

<b>IBM2313I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN name</i> built-in function must be an array expression.</b>
-------------------	---

---

## Explanation

An expression contains the named built-in function when the specified argument is a scalar or structure expression.

---

<b>IBM2314I S</b>	<b><i>BUILTIN name</i> built-in function does not support arrays of this type.</b>
-------------------	--

---

## Explanation

The QUICKSORT built-in supports only a limited set of array types. For example, FIXED BIN and ORDINAL arrays must be REAL and NATIVE.

---

<b>IBM2315I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN name</i> built-in function must have type size_t.</b>
-------------------	---

---

## Explanation

This message applies to the REGEX and other built-in functions when some arguments must have the attributes NATIVE REAL FIXED BIN PRECISION(p,0) where p = 31 in 32-bit addressing mode and p = 63 in 64-bit addressing mode.

---

<b>IBM2316I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN name</i> built-in function must have CHARACTER type.</b>
-------------------	--

---

## Explanation

This message applies to the REGEX and other built-in functions where some arguments must have the CHARACTER attribute.

---

<b>IBM2317I S</b>	<b>Argument number <i>argument number</i> to <i>BUILTIN name</i> built-in function must be an ASSIGNABLE reference.</b>
-------------------	---

---

## Explanation

The indicated argument to the named built-in function must be an ASSIGNABLE reference so that it can be assigned a value. This message applies, for example, to the first two arguments of the REGEX built-in function.

---

<b>IBM2318I S</b>	<b><i>attribute</i> attribute is valid only with computational types.</b>
-------------------	---

---

## Explanation

The VALUelist and VALUERANGE attributes cannot be used on non-computational types.

---

**IBM2319I S** *attribute attribute is not valid with COMPLEX types.*

---

### Explanation

The VALUERANGE attribute cannot be used on COMPLEX numeric types.

---

**IBM2320I S** *First argument to **BUILTIN** name built-in function must be a reference to a variable with the **VALIDLIST** or **VALIDRANGE** attribute.*

---

### Explanation

The argument to the VALIDVALUE built-in function must have one of the above attributes so that its value can be checked against the declared list or range of values.

---

**IBM2321I S** *attribute contains duplicate values.*

---

### Explanation

The items in VALUELIST and VALUERANGE lists should be unique.

---

**IBM2322I S** *The second value in the **VALUERANGE** attribute must be larger than the first.*

---

### Explanation

The items in the VALUERANGE attribute should be in strictly ascending order. Both of the following are invalid.

```
dcl a fixed bin valuerange(12,1);  
dcl b fixed bin valuerange(1,1);
```

---

**IBM2323I S** *Arguments **number** and **number** to the **BUILTIN** name built-in function must have comparable types.*

---

### Explanation

The arguments to the VALIDVALUE built-in function must be comparable. Similarly, the second and third arguments to the IFTHENELSE built-in function must be comparable. This means that if the first argument has a computational type, then the second must also, and if the first argument has an ordinal type, then the second must have the same ordinal type, etc

---

**IBM2324I S** *The attributes derived from the **PROCEDURE** statement for the*

---

**ENTRY** constant *variable name* do not match those in its explicit declaration. The **EXTERNAL** names do not match: one name is *external name*, and the other is *external name*.

### Explanation

A label on a PROCEDURE statement constitutes a declaration for an ENTRY constant with that name. That name also appears in a DECLARE statement, but the attributes in those two declarations do not match.

---

**IBM2325I S** *The values specified for the **ROUTCODE** and **DESC** in a **WTO** must be between 1 and 16.*

---

### Explanation

These values specify which bits are set in the ROUTCODE and DESC fields when a WTO or WTOR is issued. These fields consist of 16 bits, and hence the values must be between 1 and 16.

---

**IBM2326I S** *The argument to the **BUILTIN** name built-in function must have **UCHAR** type.*

---

### Explanation

This message applies to the LowerLatin1, UpperLatin1 and related built-in functions.

---

**IBM2327I S** ***TRANSLATE** of a **UCHAR** string requires 3 arguments.*

---

### Explanation

TRANSLATE of a CHARACTER string will accept 2 arguments in which case COLLATE() will be assumed for the third argument. But there is no equivalent support for TRANSLATE of a UCHAR string.

---

**IBM2328I S** ***UX** literal specifies an invalid **UTF-8** string.*

---

### Explanation

Not all hex strings represent valid UTF-8 strings. For more details on valid UTF-8 strings, see the LRM and the text describing the UVALID built-in function.

---

**IBM2329I S** *Argument to **BUILTIN** name built-in function must have type **CHAR**, **UCHAR** or **WCHAR**.*

---

## Explanation

This applies to the UVALID built-in function, for example.

---

**IBM2330I S**      **The *BUILTIN* name built-in function does not support UCHAR arguments.**

## Explanation

This applies to the CENTER, LEFT, and RIGHT built-in functions, for example.

---

**IBM2331I S**      **The input structure to the *BUILTIN* name built-in function must not contain any UTF-8 elements.**

## Explanation

The XMLCHAR built-in function cannot be applied to structures containing any UCHAR data.

---

**IBM2332I S**      **The base reference in the *DEFINED* attribute cannot have a UTF-8 type.**

## Explanation

DEFINED is not supported with UCHAR.

---

**IBM2333I S**      **Argument number *argument* number to *BUILTIN* name built-in function must have a computational, ordinal or pointer type.**

## Explanation

An expression contains the named built-in function with the specified argument having a noncomputational type that is neither an ordinal type nor a POINTER or HANDLE. This message applies to the IFTHENELSE built-in function.

---

**IBM2334I S**      **Argument number *argument* number to *BUILTIN* name built-in function must be nonvarying with a known length.**

## Explanation

An expression contains the named built-in function with the specified argument be a string that is either VARYING or has an unknown length. This message applies to the IFTHENELSE built-in function.

---

**IBM2335I S**      **VALUELISTFROM reference must name a structure consisting only of elements with the VALUE attribute.**

## Explanation

In VALUELISTFROM X, X must not contain any substructures and every element of X must have the VALUE attribute.

---

**IBM2336I S**      **The fourth argument to the *BUILTIN* name built-in function must be a constant specifying the name of a casing rule.**

## Explanation

When uppercased, the argument to the named built-in function must be one of 'ASIS', 'LOWER', or 'UPPER'.

---

**IBM2337I S**      ***BUILTIN* name argument must have numeric type.**

## Explanation

An expression contains the named built-in function with an argument that is not FIXED, FLOAT, or numeric PICTURE.

---

**IBM2338I S**      **A QUALIFY block may contain only *DEFINE* statements, *DECLARE* statements, and nested *QUALIFY* blocks.**

## Explanation

DEFAULT statements, for example, are not allowed in QUALIFY blocks.

---

**IBM2339I S**      **A QUALIFY block must have a name, but only one.**

## Explanation

Specify only one label on a QUALIFY statement.

---

**IBM2340I S**      **A name declared in a QUALIFY block must be a scalar.**

## Explanation

A DECLARE statement in a QUALIFY block cannot specify a structure, union or array.

---

**IBM2341I S**      **A name declared in a QUALIFY block must have the VALUE attribute.**

## Explanation

A DECLARE statement in a QUALIFY block cannot specify a variable or a constant unless it has the VALUE attribute.



---

**IBM2342I S**      **CONVERSION** condition raised by attempt to convert the **GRAPHIC** character with hex value *source-value* to **CHARACTER**.

---

### Explanation

The source value cannot be converted to SBCS.

---

**IBM2343I S**      The type name *type name* is ambiguous.

---

### Explanation

Enough qualification must be provided to make any type reference unique.

---

**IBM2344I S**      *type name* is a type name, but not the name of a **STRUCTURE** type.

---

### Explanation

In a declare statement that specifies **HANDLE** x, x must be the name of a **STRUCTURE** type.

---

**IBM2345I S**      *type name* is a type name, but not the name of an **ORDINAL** type.

---

### Explanation

In a declare statement that specifies **ORDINAL** x, x must be the name of an **ORDINAL** type.

---

**IBM2346I S**      Argument number *argument number* to **BUILTIN** name built-in function must be either a scalar or a one-dimensional array of scalars.

---

### Explanation

This applies, for example, to the **REGEX** built-in function.

---

**IBM2347I S**      The second argument to the **BUILTIN** name built-in function must have the same number of dimensions as the first argument.

---

### Explanation

This applies, for example, to the **REGEX** built-in function. In **REGEX**( x, y, ... ), either x and y must both be scalars or they must both be one-dimensional.

---

**IBM2348I S**      The second argument to the **BUILTIN** name built-in function must have the same lower bound as the first argument. But its lower

---

bound is *lbound* while the first argument's lower bound is *lbound*.

### Explanation

This applies, for example, to the **REGEX** built-in function.

---

**IBM2349I S**      The second argument to the **BUILTIN** name built-in function must have the same upper bound as the first argument. But its upper bound is *hbound* while the first argument's upper bound is *hbound*.

---

### Explanation

This applies, for example, to the **REGEX** built-in function.

---

**IBM2350I S**      *attribute* must be returned **BYADDR**.

---

### Explanation

**BYADDR** must be used in **RETURNS** of **PICTURE** and **VARYING**.

---

**IBM2351I S**      Scale factor in **BUILTIN** name is less than 0.

---

### Explanation

The scale factors in the named built-in functions must be nonnegative. The compiler flags the second statement below, but not the third one (which is a possible replacement for the second).

```
b = round( c, -1 );  
b = 10 * round( c / 10, 0 );
```

---

**IBM2352I S**      The rounding digit *scale-factor* specified in the **BUILTIN** name built-in function specifies a value too far to the right for its *attributes* argument.

---

### Explanation

In **ROUND**(x,n), if x is **FIXED**(p,q), then n must be less than or equal to q. For example, if x is **FIXED** **DEC**(5,3), then **ROUND**(x,4) requests a rounding of a non-existent fractional part.

```
dc1 b fixed dec(31,10);
```

```
display( round(b,42) );
```

**IBM2353I S**      **Multiplication of *FIXED(precision,scale-factor)* and *FIXED(precision,scale-factor)* would produce a result with a scale factor that is not between -128 and 127.**

### Explanation

The scale factor of the result of a multiply is the sum of the two scale factors. This value must be between -128 and 127.

**IBM2354I S**      **Division of *FIXED(precision,scale-factor)* and *FIXED(precision,scale-factor)* would produce a result with a scale factor that is not between -128 and 127.**

### Explanation

The scale factor of the result of a division is the difference of the two scale factors plus the difference between the maximum allowed precision and the precision of the dividend. This value must be between -128 and 127.

**IBM2355I S**      **Add and subtract of *FIXED(precision,scale-factor)* and *FIXED(precision,scale-factor)* is not allowed because the difference in scale factors is greater than the maximum precision allowed.**

### Explanation

For an add or subtract of BIN(p1,q1) and BIN(p2,q2), the value abs(q1-q2) must be less than or equal to 63. For an add or subtract of DEC(p1,q1) and DEC(p2,q2), the value abs(q1-q2) must be less than or equal to 31.

**IBM2356I S**      **In commalist number *commalist\_count*, the number of expressions is *element\_count*, but the number of expressions in the first commalist is *element\_count*. The number of expressions in each commalist must match.**

### Explanation

The number of expressions in each commalist in the INITACROSS attribute must match. If they did not, some of the members of the INITACROSS structure would have too few or too many INITIAL values. For

example, in this (invalid) declare, the third commalist has one less element than the previous 2 commalists (because the capital for Spain is missing).

```

dcl
  1 data(3)      static

initacross( ('DE','Germany', 'Berlin' )
            ('FR','France', 'Paris' )
            ,('SP','Spain')
            )
           ,2 cc      char(2)
           ,2 name    char(40) var
           ,2 capital char(40) var
;

```

**IBM2357I S**      **INITACROSS structure member count of *member\_count* does not match the implied member count of *element\_count* from the INITACROSS attribute.**

### Explanation

The explicit member count for an INITACROSS structure must match the implicit member count defined by the number of elements in each of the INITACROSS commalists. For example, in this (invalid) declare, the explicit member count for the structure is 2, but the implicit member count is 3.

```

dcl
  1 data(3)      static

initacross( ('DE','Germany', 'Berlin' )
            ('FR','France', 'Paris' )
            ,('SP','Spain',
            'Madrid')
            )
           ,2 cc      char(2)
           ,2 name    char(40) var
;

```

**IBM2358I S**      **INITACROSS structures must be one-dimensional arrays.**

### Explanation

The INITACROSS attribute must be applied only to one-dimensional arrays with no inherited dimensions.

**IBM2359I S**      **INITACROSS structure members must all be scalars.**

### Explanation

The members of a structure with the INITACROSS attribute must not be structures or unions and must

not have any dimensions other than what they inherited from the structure itself.

---

**IBM2360I S**      **The result of the *BUILTIN* name built-in would have the attributes *FIXED base name(precision,scale-factor)*, but *FIXED base name scale factors* must be nonnegative.**

---

### Explanation

You must recode such statements to avoid this restriction. The compiler does not support the use of the *BINARY* built-in function in the following code.

```
dcl (x,y) fixed bin(15,0);
put list( bin(x,15,-2) );
```

---

**IBM2362I S**      **The rounding digit *scale-factor* specified in the *BUILTIN* name built-in function specifies a value too far to the left for its *attributes* argument.**

---

### Explanation

In *ROUND(x,n)*, if *x* is *FIXED(p,q)*, then  $(p-q)+n$  must be greater than or equal to 0. Otherwise, the computation is somewhat meaningless. For example, if *x* is *FIXED DEC(5,4)*, then *ROUND(x,-2)* would request a rounding of a non-existent tens power.

---

**IBM2363I S**      **In *FIXED(p,q)* declares, *q* must be nonnegative.**

---

### Explanation

*FIXED* declares with a negative scale factor are invalid.

---

**IBM2364I S**      **ENTRY declared with *OPTIONS( amode option )* must also specify *OPTIONS( option name )*.**

---

### Explanation

*OPTIONS( AMODE31 )* and *OPTIONS( AMODE64 )* require *FETCHABLE*, *NODESCRIPTOR*, and *LINKAGE* options to be specified.

---

**IBM2365I S**      **ENTRY declared with *OPTIONS( amode option )* must specify either *RETURNS BYVALUE* of a small integer type, or *RETURNS BYADDR*, or no *RETURNS*.**

---

### Explanation

An *ENTRY* with *OPTIONS( AMODE31 )* or *OPTIONS( AMODE64 )* cannot return other types. Only *ORDINAL* and unscaled *REAL FIXED BIN* of 4 bytes or less are allowed in *RETURNS BYVALUE* for *AMODE31* and *AMODE64*.

---

**IBM2366I S**      **With the exception of addresses and integers, all arguments passed to an *ENTRY* declared with *OPTIONS( amode option )* must be passed *BYADDR*.**

---

### Explanation

*OPTIONS( AMODE31 )* and *OPTIONS( AMODE64 )* do not support passing arguments *BYVALUE* unless they have one of the types *POINTER*, *HANDLE*, *ORDINAL*, or *REAL FIXED BIN*.

---

**IBM2367I S**      **An *ENTRY* declared with *OPTIONS( AMODE31 )* or *OPTIONS( AMODE64 )* cannot be implicitly or explicitly assigned to another *ENTRY*.**

---

### Explanation

An *ENTRY* with *OPTIONS( AMODE31 )* or *OPTIONS( AMODE64 )* cannot be used as the source in an assignment, as an argument, or as a *RETURN* value.

---

**IBM2368I S**      **ENTRY declared with *OPTIONS( amode option )* must specify a (possibly empty) parenthesized list of no more than 64 parameters.**

---

### Explanation

An *ENTRY* with *OPTIONS( AMODE31 )* or *OPTIONS( AMODE64 )* cannot be declared as just *ENTRY*. Its declare must indicate the number of arguments that it expects, and that number must be less than or equal to 64. If it has no arguments, it should be declared as *ENTRY()*.

---

**IBM2369I S**      **All aggregate arguments passed to an *ENTRY* declared with *OPTIONS( AMODE31 )* must be connected variable references.**

---

### Explanation

An argument passed to an *ENTRY* with *OPTIONS( AMODE31 )* must not be a structure or array expression, and if it is an array reference, it must be connected.

---

**IBM2370I S**      **The attributes specified in the keyword of name do not match those in its original definition.**

---

### Explanation

The attributes in XDECLARE must exactly match those in its original DECLARE.

---

**IBM2371I S**      **Source has length *source-length* which is less than the length of the source pattern *source-pattern*. Since the pattern has no zero suppression, invoking this REPATTERN will cause the ERROR condition to be raised.**

---

### Explanation

In REPATTERN( d, p, q ), if LENGTH( d ) is smaller than LENGTH( q ), the code is valid only if q has some zero suppression (Z) characters.

---

**IBM2372I S**      **XDECLARE statement must specify a name.**

---

### Explanation

Statements that start with XDECLARE \* and XDECLARE 1 \* are invalid.

---

**IBM2373I S**      **The argument to the *BUILTIN name* built-in function must be REAL FIXED BIN with a positive scale factor.**

---

### Explanation

In IFRAC(x), x must be REAL FIXED BIN(p,q) with q > 0.

---

**IBM2374I S**      **UNSIGNED attribute for *type type* type *type name* is invalid since its VALUE set includes negative values.**

---

### Explanation

If an ORDINAL type is declared with the UNSIGNED attribute, any VALUES specified must be nonnegative.

---

**IBM2375I S**      **PRECISION specified for *type type* type *type name* is too small to cover its VALUE set.**

---

### Explanation

An ORDINAL type must have a precision larger enough to cover the range of values defined for it.

```
define ordinal
  colors
    ( red      init(0),
      orange   init(256)
      yellow   init(512) ) unsigned prec(8);
```

---

**IBM2376I S**      **The operands in a division operation have the attributes *operand attributes* and *operand attributes* which would produce a result with the attributes *result attributes*. This means that its scale factor would be negative. You may be able to avoid this problem by changing the the scale factor of the divisor (for example, if the divisor is the constant 100.0, by changing it to 100) or by using the DIVIDE built-in function.**

---

### Explanation

This message can occur in a divide of x by y if the scale factor of y is greater than the scale factor of x, for example if x has the attributes FIXED BIN(31,0) and y is a FIXED DEC with a fractional part. To eliminate this message, the PRECISION built-in function could be used to change the scale factor of the operands or the DIVIDE built-in function could be used to override the default attributes for the result.

---

**IBM2377I S**      **The filter function passed to the *BUILTIN name* built-in function must be a LIMITED ENTRY, must return BYVALUE a NATIVE FIXED BIN(31), must have exactly four BYVALUE arguments with types a POINTER, an ORDINAL, a POINTER, and a NATIVE FIXED BIN(31), and must have the OPTLINK linkage.**

---

### Explanation

This message applies to the JSONGETVALUE and JSONGETMEMBER built-in functions. This argument is the filter function to be invoked to filter out JSON elements. It must be a LIMITED ENTRY (and hence must not be a nested PROCEDURE) and must have the other properties listed in the message.

---

**IBM2378I S**      **The DEFINE ORDINAL statement does not specify a PRECISION attribute. This is valid only if all the VALUE expressions in the statement are (possibly signed) integers or**

---

**if the `DEFAULT(ORDINAL(MAX))` compiler option is in effect.**

the `PRECISION` attribute may be omitted from the statement.

### **Explanation**

If all the `VALUE` expressions in a `DEFINE ORDINAL` statement are integers or signed integers, then



# Chapter 5. MACRO, CICS, and SQL Preprocessor Messages (3000-3999)

**IBM3000I I**      *note*

## Explanation

This message is used to report DB2 or CICS backend messages with a return code of 0.

**IBM3019I I**      **Program contains no EXEC SQL statements requiring translation.**

## Explanation

The SQL suboption has been specified for the PP option, but the program contains no EXEC SQL statements other than possibly EXEC SQL INCLUDE statements. The DBRMLIB will not be updated.

**IBM3020I I**      **Comment spans *line-count* lines.**

## Explanation

A comment ends on a different line than it begins. This may indicate that an end-of-comment delimiter is missing.

**IBM3021I I**      **String spans *line-count* lines.**

## Explanation

A string ends on a different line than it begins. This may indicate that a closing quote is missing.

**IBM3024I I**      *note*

## Explanation

This message is used by %NOTE statements with a return code of 0.

**IBM3250I W**      *note*

## Explanation

This message is used to report DB2 or CICS backend messages with a return code of 4.

**IBM3251I W**      ***identifier* is multiply defined, but with different attributes. The declaration is ignored.**

## Explanation

Attributes and declares must be consistent.

```
%a: proc;  
%end;  
%dcl a;
```

**IBM3252I W**      **The attribute *attribute* conflicts with previous attributes and is ignored.**

## Explanation

Attributes must be consistent.

```
dcl a fixed char;
```

**IBM3253I W**      **Comment spans more than one file.**

## Explanation

A comment ends in a different file than it begins. This may indicate that an end-of-comment statement is missing.

**IBM3254I W**      **String spans more than one file.**

## Explanation

A string ends in a different file than it begins. This may indicate that a closing quote is missing.

**IBM3255I W**      **Delimiter missing between *nondelimiter* and *nondelimiter*. A blank is assumed.**

## Explanation

A delimiter (for example, a blank or a comma) is required between all identifiers and constants.

```
dcl 1 a, 2 b, 3c;
```

**IBM3256I W**      **Multiple closure of groups. END statements will be inserted to close intervening groups.**

## Explanation

Using one END statement to close more than one group of statements is permitted, but it may indicate a coding error.

---

**IBM3257I W**      **Missing *character* assumed.**

---

## Explanation

The indicated character is missing, and there are no more characters in the source. The missing character has been inserted by the parser in order to correct your source.

---

**IBM3258I W**      **Missing *character* assumed before *character*.**

---

## Explanation

The indicated character is missing and has been inserted by the parser in order to correct your source.

```
%dcl jump fixed;
%skip
%jump = 2;
```

---

**IBM3259I W**      *note*

---

## Explanation

This message is used by %NOTE statements with a return code of 4.

---

**IBM3260I W**      **Syntax of the %CONTROL statement is incorrect.**

---

## Explanation

The %CONTROL statement must be followed by FORMAT or NOFORMAT option enclosed in parentheses and then a semicolon.

---

**IBM3261I W**      **The suboption *suboption* is not valid for the suboption *option* of the *option* option.**

---

## Explanation

A suboption of a suboption of an option is incorrect. The suboption may be unknown or outside the allowable range.

```
*process deprecate(stmt(test));
```

---

**IBM3262I W**      **The suboption *option* of the *option* option must be followed by a**

---

(possibly empty) parenthesized list.

## Explanation

A suboption of an option has been incorrectly specified. It must be followed by a left parenthesis and then a (possibly empty) list of items and a closing right parenthesis.

```
*process deprecate(stmt);
```

---

**IBM3265I W**      **Number of lines specified with %SKIP must be between 0 and 999 inclusive.**

---

## Explanation

Skip amounts greater than 999 are not supported.

```
%skip(2000);
```

---

**IBM3270I W**      **'EXEC CICS' encountered, but the CICS option is not in effect. Command ignored.**

---

## Explanation

The CICS option must be in effect if the source contains EXEC CICS statements.

---

**IBM3271I W**      **'EXEC CSPM' encountered, but the CSPM option is not in effect. Command ignored.**

---

## Explanation

The CSPM option must be in effect if the source contains EXEC CSPM statements.

---

**IBM3272I W**      **'EXEC DLI' encountered, but the DLI option is not in effect. Command ignored.**

---

## Explanation

The DLI option must be in effect if the source contains EXEC DLI statements.

---

**IBM3281I W**      **SELECT statement contains no WHEN or OTHERWISE clauses.**

---

## Explanation

WHEN or OTHERWISE clauses are not required on SELECT statements, but their absence may indicate a coding error.



---

**IBM3283I W**      **SELECT statement contains no WHEN clauses.**

---

### Explanation

SELECT statements do not require WHEN clauses, but their absence may indicate a coding error.

---

**IBM3285I W**      **FIXED BINARY constant contains too many digits. Excess nonsignificant digits will be ignored.**

---

### Explanation

A FIXED BINARY constant must contain 31 or fewer digits.

---

**IBM3286I W**      **FIXED DECIMAL constant contains too many digits. Excess nonsignificant digits will be ignored.**

---

### Explanation

The maximum precision for FIXED DECIMAL constants is specified by the FIXEDDEC suboption of the LIMITS compiler option.

---

**IBM3287I W**      **Mantissa in FLOAT BINARY constant contains more digits than the implementation maximum. Excess nonsignificant digits will be ignored.**

---

### Explanation

Float binary constants are limited to 64 digits.

---

**IBM3288I W**      **Mantissa in FLOAT DECIMAL constant contains more digits than the implementation maximum. Excess nonsignificant digits will be ignored.**

---

### Explanation

Float decimal constants are limited to 18 digits.

---

**IBM3289I W**      **FLOAT literal is too big for its implicit precision. An appropriate HUGE value is assumed.**

---

### Explanation

The precision for a float literal is implied by the number of digits in its mantissa. For instance 1e99 is implicitly FLOAT DECIMAL(1), but the value 1e99 is larger than the largest value a FLOAT DECIMAL(1) can hold.

---

**IBM3291I W**      **The OPTIONS option *option-name* conflicts with the LANGLVL compiler option. The option will be applied.**

---

### Explanation

The named option is not part of the PL/I language definition as specified in the LANGLVL compiler option.

---

**IBM3292I W**      ***suboption* is not a valid suboption for *option*.**

---

### Explanation

The specified suboption is not one of the supported suboptions of the named option.

```
*process pp(macro('fixed(long)'));
```

---

**IBM3293I W**      **A required suboption is missing for the *suboption* option.**

---

### Explanation

The named option requires a suboption.

```
*process pp(macro('fixed'));
```

---

**IBM3294I W**      **A closing parenthesis is missing in the specification of the *option* option. One is assumed.**

---

### Explanation

A closing parenthesis is missing in the specification of the named option.

```
*process pp(macro('fixed(bin)'));
```

---

**IBM3295I W**      ***option* is not a supported option.**

---

### Explanation

The named option is not, in fact, an option.

```
*process pp(macro('float'));
```

---

**IBM3299I W**      **Syntax of the %LINE directive is incorrect.**

---

### Explanation

The %LINE directive must be followed, with optional intervening blanks, by a parenthesis, a line number, a comma, a file name and a closing parenthesis.

```
%line( 19, test.pli );
```

---

**IBM3300I W**      *identifier has not been declared.  
CHARACTER attribute assumed.*

---

### Explanation

All variables should be declared.

---

**IBM3309I W**      *Comparison of **BUILTIN** name to a  
value it could not return is odd.*

---

### Explanation

This message points to a likely programming error. For example, comparing SYSPointersize to the value 32 is almost certainly an error since the only values SYSPointersize could return are 4 and 8.

---

**IBM3310I W**      *First argument to the **BUILTIN**  
name built-in function should have  
string type.*

---

### Explanation

To eliminate this message, apply the CHAR or BIT built-in function to the first argument.

```
decl i fixed bin;  
display( substr(i,4) );
```

---

**IBM3311I W**      *Argument number to the **BUILTIN**  
name built-in function is missing.  
A null value will be passed for the  
missing argument.*

---

### Explanation

An argument to the function reference is missing. A null string or zero will be passed, as appropriate, for the missing argument.

```
%decl a fixed;  
%a = max(n,);
```

---

**IBM3312I W**      *LEAVE will exit noniterative DO-  
group.*

---

### Explanation

This message is not produced if the LEAVE statement specifies a label. In the following loop, the LEAVE

statement will cause only the immediately enclosing DO-group to be exited; the loop will not be exited.

```
do i = 1 to n;  
  if a(i) > 0 then  
    do;  
      call f;  
      leave;  
    end;  
  else;  
  end;  
end;
```

---

**IBM3313I W**      *Result of comparison is always  
constant.*

---

### Explanation

This message is produced when a variable is compared to a constant equal to the largest or smallest value that the variable could assume. In the following loop, the variable x can never be greater than 99, and hence the implied comparison executed each time through the loop will always result in a '1'b.

```
do x pic'99';  
  
do x = 1 to 99;  
end;
```

---

**IBM3314I W**      *The reference **reference** could refer  
to a parent or its child, but the  
child is assumed.*

---

### Explanation

For a structure named X with first child named X, a reference to X would by PL/I rules be resolved to the parent. But references to structures containing structures are invalid in SQL statements and so the reference is assumed to refer to the child. The reference should be changed from X to X.X.

---

**IBM3315I W**      *The reference **reference** is an array  
of structures. Arrays of structures  
are not valid in SQL statements,  
but because this structure consists  
of only one element, the reference  
is treated as if it were a reference  
to its lone child.*

---

### Explanation

If a dimensioned structure named A consists of just one child B, a reference to A is treated as a reference to A.B.

---

**IBM3316I W**      *The reference **reference** is a  
structure containing an array.*

---

**Structures containing arrays are not valid in SQL statements, but because this structure consists of only one element, the reference is treated as if it were a reference to its lone child.**

## Explanation

If a structure named A consists of just one child B and B is an array, a reference to A is treated as a reference to A.B.

---

**IBM3317I W**      *note*

## Explanation

This message is used to report DB2 message DSNH030I.

---

**IBM3320I W**      **RETURNS attribute in ENTRY declare ignored.**

## Explanation

ENTRY declares should not specify a RETURNS attribute. In the example below, the "returns( char )" should be omitted.

```
%dcl a entry returns( char );
```

---

**IBM3321I W**      **RETURNS option assumed to enclose attribute in PROCEDURE statement.**

## Explanation

In a PROCEDURE statement, any RETURNS attribute should be enclosed in parentheses following the RETURNS keyword. In the example below, the "char" attribute should be specified as "returns( char )".

```
%a: proc char ;
      return( '1729' );
%end;
```

---

**IBM3322I W**      **Argument list for PROCEDURE identifier is missing. It will be invoked without any arguments.**

## Explanation

References in open code to PROCEDURES that have parameters should always include at least an empty argument list. For example, the "display( a )" below should be "display( a() )".

```
%a: proc( x ) char ;
      dcl x char;
      return( '1729' );
%end;
%act a;

display( a );
```

---

**IBM3323I W**      **Too few arguments for PROCEDURE identifier. Null values will be passed for the missing arguments.**

## Explanation

There are too few arguments for the specified procedure. Null strings or zeros will be passed, as appropriate, for the missing arguments.

```
%a: proc( x ) char ;
      dcl x char;
      return( '1729' );
%end;
%act a;

display( a() );
```

---

**IBM3324I W**      **Too many arguments for PROCEDURE identifier. Excess ignored.**

## Explanation

There are too many arguments for the specified procedure. The excess arguments will be ignored.

```
%a: proc( x ) char ;
      dcl x char;
      return( '1729' );
%end;
%act a;

display( a(1,2) );
```

---

**IBM3325I W**      **No data attributes specified in declare for identifier.**

## Explanation

Preprocessor variables should be declared with an attribute such as CHAR or FIXED. This message could indicate that there is an extraneous comma in the declare statement as in this example.

```
%dcl a, char;
```

---

**IBM3326I W      The LIKE reference is neither a structure nor a union.**

### Explanation

The LIKE reference cannot be a scalar or an array of scalars.

```
dc1
  a fixed bin,
  1 b like a;
```

---

**IBM3327I W      The LIKE reference is ambiguous.**

### Explanation

The LIKE reference needs enough qualification to be unique.

```
dc1
  1 x like b,
  1 a,
    2 b,
    3 c,
    3 d,
    2 e,
    3 f,
    3 g,
  1 h,
    2 b,
    3 j,
    3 k;
```

---

**IBM3328I W      Neither the LIKE reference nor any of its substructures can be declared with the LIKE attribute.**

### Explanation

LIKE from LIKE is not supported.

```
dc1
  1 a,
    2 b1 like c,
    2 b2 like c,
  1 c,
    2 d fixed bin,
    2 e fixed bin;
dc1
  1 x like a;
```

---

**IBM3329I W      The LIKE reference must not be a member of a structure or union declared with the LIKE attribute.**

### Explanation

LIKE from LIKE is not supported.

```
dc1
  1 a,
    2 b1 like c,
    2 b2 like c,
  1 c,
    2 d fixed bin,
    2 e fixed bin;
dc1
  1 x like a.b1;
```

---

**IBM3330I W      The LIKE reference is unknown.**

### Explanation

The LIKE reference must be known in the block containing the LIKE attribute specification.

---

**IBM3331I W      The INCLUDE file *filename* will be deprecated.**

### Explanation

The named INCLUDE file was specified in the INCLUDE suboption of the DEPRECATENEXT option, and so any attempt to include it is flagged.

---

**IBM3332I W      The END statement has no matching BEGIN, DO, PACKAGE, PROC, or SELECT. This may indicate a problem with the syntax of a previous statement.**

### Explanation

An END statement has been found that matches no previous statement. This may indicate that a previous statement has a syntax error such as a missing closing semicolon.

---

**IBM3333I W      One or more END statements are missing. This may indicate a problem with the syntax of a previous statement.**

### Explanation

The source ended without closing END statements for all the open statement groups. This may indicate that a previous statement has a syntax error such as a missing closing semicolon.

---

**IBM3334I W      The ENTRY named *variable* will be deprecated.**

### Explanation

The named ENTRY was specified in the ENTRY suboption of the DEPRECATENEXT option, and so any use of it is flagged.

---

**IBM3500I E** *note*

### Explanation

This message is used to report DB2 or CICS backend messages with a return code of 8.

---

**IBM3501I E** *note*

### Explanation

This message is used by %NOTE statements with a return code of 8.

---

**IBM3502I E** **An integer with a K suffix must have no more than 7 digits.**

### Explanation

An integer of the form dddK must have no more than 7 digits. The specified value is replaced by 1K.

---

**IBM3503I E** **In an integer with a K suffix the digits must specify a value less than or equal to 2097152.**

### Explanation

The largest accepted value for an integer with a K suffix is 2097152K. The specified value is replaced by 2097151K.

---

**IBM3504I E** **An integer with an M suffix must have no more than 4 digits.**

### Explanation

An integer of the form dddM must have no more than 4 digits. The specified value is replaced by 1M.

---

**IBM3505I E** **In an integer with an M suffix the digits must specify a value less than or equal to 2048.**

### Explanation

The largest accepted value for an integer with an M suffix is 2048M. The specified value is replaced by 2047M.

---

**IBM3506I E** **An integer with a G suffix must have only 1 digit.**

### Explanation

An integer of the form dddG must have no more than 1 digit. The specified value is replaced by 1G.

---

**IBM3507I E** **In an integer with an G suffix the digits must specify a value less than or equal to 2.**

### Explanation

The largest accepted value for an integer with an G suffix is 2G. The specified value is replaced by 1G.

---

**IBM3508I E** **Numeric precision of 0 replaced by 1.**

### Explanation

Numeric precisions must be positive.

---

**IBM3509I E** **DECLARE statement has invalid syntax. No variables in it may be used in EXEC SQL statements.**

### Explanation

Fix the DECLARE statement so that it is syntactically correct.

---

**IBM3510I E** **keyword statement is not allowed where an executable statement is required. A null statement will be inserted before the keyword statement.**

### Explanation

In certain contexts, for example after an IF-THEN clause, only executable statements are permitted. A DECLARE, DEFINE, DEFAULT or FORMAT statement has been found in one of these contexts. A null statement, (a statement consisting of only a semicolon) will be inserted before the offending statement.

---

**IBM3511I E** **COUNTER value would exceed 99999. It will be reset to 0.**

### Explanation

The COUNTER built-in function should not be invoked more than 99999 times.

---

**IBM3512I E** **Multiple closure of groups is not allowed under RULES(NOMULTICLOSE).**

### Explanation

Under RULES(NOMULTICLOSE), there should be no multiple closure of groups in your source program.

---

**IBM3514I E** **Second argument to the BUILTIN name built-in function is negative. It will be changed to 0.**

## Explanation

The second argument to built-in functions such as COPY and REPEAT must be nonnegative.

```
x = copy( y, -1 );
```

---

**IBM3515I E**      **Scale factor is bigger than 127. It is replaced by 127.**

## Explanation

Scale factors must be between -128 and 127 inclusive.

---

**IBM3516I E**      **Scale factor is less than -128. It is replaced by -128.**

## Explanation

Scale factors must be between -128 and 127 inclusive.

---

**IBM3517I E**      **Sole bound specified for dimension *dimension number* of array *variable name* is less than 1. An upper bound of 1 is assumed.**

## Explanation

The default lower bound is 1, but the upper bound must be greater than the lower bound.

```
dcl x(-5) fixed bin;
```

---

**IBM3518I E**      ***identifier* does not conform to the NAMEPREFIX option.**

## Explanation

If the NAMEPREFIX option is specified, the names of all macro variables and procedures must start with the character specified in that option.

---

**IBM3519I E**      **Characters in B3 literals must be 0-7.**

## Explanation

In a B3 literal, each character must be either 0-7.

---

**IBM3520I E**      **Structure level of 0 replaced by 1.**

## Explanation

Structure level numbers must be positive.

---

**IBM3521I E**      **Structure level greater than 255 specified. It is replaced by 255.**

## Explanation

The maximum structure level supported is 255.

```
dcl
  1 a,
 256 b,
 2 c,
```

---

**IBM3522I E**      **A DECIMAL exponent is required.**

## Explanation

An E in a FLOAT constant must be followed by at least one decimal digit (optionally preceded by a sign).

---

**IBM3523I E**      **A second argument to the *BUILTIN name* built-in function must be supplied for arrays with more than one dimension. A value of 1 is assumed.**

## Explanation

The LBOUND, HBOUND, and DIMENSION built-in functions require two arguments when applied to arrays having more than one dimension.

```
dcl a(5,10) fixed bin;
do i = 1 to lbound(a);
```

---

**IBM3524I E**      **Second argument to the *BUILTIN name* built-in function is not positive. A value of 1 is assumed.**

## Explanation

The DIMENSION, HBOUND and LBOUND built-in functions require that the second argument be positive.

---

**IBM3525I E**      **Second argument to the *BUILTIN name* built-in function is greater than the number of dimensions for the first argument. A value of *dimension count* is assumed.**

## Explanation

The second argument to the LBOUND, HBOUND, and DIMENSION built-in functions must be no greater than the number of dimensions of their array arguments.

```

dcl a(5,10) fixed bin;
do i = 1 to lbound(a,3);

```

**IBM3526I E**      **Repeated declaration of *identifier* is invalid and will be ignored.**

### Explanation

Level 1 variable names must not be repeated in the same block.

```

dcl a char, a fixed;

```

**IBM3527I E**      **Missing THEN assumed.**

### Explanation

THEN keyword must be part of any IF statement.

**IBM3528I E**      **Duplicate specification of arithmetic precision. Subsequent specification ignored.**

### Explanation

The precision attribute must be specified only once in a DECLARE statement.

```

dcl a fixed(15) bin(31);

```

**IBM3529I E**      **Scale factors are not allowed in FLOAT declarations.**

### Explanation

Scale factors are valid only in declarations of FIXED BIN or FIXED DEC. The first declaration below is invalid and should be changed to one of the subsequent declarations.

```

dcl a1 float dec(15,2);

dcl a2 fixed dec(15,2);
dcl a3 float dec(15);

```

**IBM3530I E**      ***identifier* is an array. ACTIVATE and DEACTIVATE are invalid for arrays.**

### Explanation

Only scalars may be activated.

**IBM3531I E**      ***identifier* is a statement label. ACTIVATE and DEACTIVATE are invalid for labels.**

### Explanation

Labels may not be activated.

**IBM3533I E**      **THEN clause outside of an open IF statement is ignored.**

### Explanation

THEN clauses are valid only immediately after an IF <expression>.

```

%if a > b; %then;

```

**IBM3534I E**      **ELSE clause outside of an open IF-THEN statement is ignored.**

### Explanation

ELSE clauses are valid only immediately after an IF-THEN statement.

```

do; if a > b then; end; else a = 0;

```

**IBM3536I E**      **END label is not a label on any open group.**

### Explanation

A Label on END statement must match a LABEL on an open DO, PROCEDURE, or SELECT statement.

```

a: do;
...
end b;

```

**IBM3537I E**      **An END statement may be missing after an OTHERWISE unit. One will be inserted.**

### Explanation

After an OTHERWISE unit in a SELECT statement, only an END statement is valid.

```

select;
when ( ... )
do;
end;

```

```

        otherwise
        do;
        end;
display( .... );

```

**IBM3538I E**      **%END statement found without any open %PROCEDURE, %DO or %SELECT statements. It will be ignored.**

### Explanation

Any %END statement should be part of a %PROCEDURE-%END, %DO-%END or %SELECT-%END group.

**IBM3539I E**      **STRINGSIZE condition raised while evaluating expression. Result is truncated.**

### Explanation

During the conversion of a user expression during the compilation, the target string was found to be shorter than the source, thus causing the STRINGSIZE condition to be raised.

**IBM3540I E**      **STRINGRANGE condition raised while evaluating expression. Arguments are adjusted to fit.**

### Explanation

If all the arguments in a SUBSTR reference are constants or restricted expressions, the reference will be evaluated at compile- time and the STRINGRANGE condition will occur if the arguments do not comply with the rules described for the SUBSTR built-in function.

```

a = substr( 'abcdef', 5, 4 );

```

**IBM3542I E**      **LEAVE/ITERATE label is not a label on any open DO group.**

### Explanation

LEAVE/ITERATE must specify a label on an open DO loop.

```

%a: do jx = 1 to 1729;
    %leave b;
%end;

```

**IBM3543I E**      **ITERATE/LEAVE statement is invalid outside an open DO**

**statement. The statement will be ignored.**

### Explanation

ITERATE/LEAVE statements are valid only inside DO groups.

```

%a: do jx = 1 to 1729;
    %end;
%leave a;

```

**IBM3544I E**      **GX literals should contain a multiple of 4 hex digits.**

### Explanation

GX literals must represent graphic strings and hence must contain a multiple of 4 hex digits.

```

x = '00'gx;

```

**IBM3545I E**      **Upper bound for dimension *dimension number* of array *variable name* is less than lower bound. Bounds will be reversed.**

### Explanation

A variable has been declared with an upper bound that is less than its lower bound. The upper and lower bounds will be swapped in order to correct this. For example, DECLARE x(3:1) will be changed to DECLARE x(1:3).

**IBM3546I E**      **Identifier is too long. It will be collapsed to *identifier*.**

### Explanation

All identifiers must be contained in 31 bytes or less. PL/I DBCS identifiers must have 14 or fewer DBCS characters.

**IBM3547I E**      **B assumed to complete iSUB.**

### Explanation

There is no language element of the form 1su.

```

dcl a(10) def b(1su, 1sub );

```

**IBM3548I E**      **Digit in BINARY constant is not zero or one.**



## Explanation

In a BINARY constant, each digit must be a zero or one.

---

**IBM3549I E**      **Characters in BIT literals must be 0 or 1.**

## Explanation

In a BIT literal, each character must be either zero or one.

---

**IBM3550I E**      **Character with decimal value *n* does not belong to the PL/I character set. It will be ignored.**

## Explanation

The indicated character is not part of the PL/I character set. This can occur if a program containing NOT or OR symbols is ported from another machine and those symbols are translated to a character that is not part of the PL/I character set. Using the NOT and OR compiler options can help avoid this problem.

---

**IBM3551I E**      **Characters in hex literals must be 0-9 or A-F.**

## Explanation

In a hex literal, each character must be either 0-9 or A-F.

---

**IBM3552I E**      **The statement element *character* is invalid. The statement will be ignored.**

## Explanation

The statement entered could not be parsed because the specified element is invalid.

---

**IBM3553I E**      **Use of underscore as initial character in an identifier accepted although invalid under LANTLRVL(SAA).**

## Explanation

Under LANTLRVL(SAA), identifiers must start with an alphabetic character or with one of the extralingual characters. They may not start with an underscore. Under LANTLRVL(SAA2), identifiers may start with an underscore, although names starting with \_IBM are reserved for use by IBM.

---

**IBM3556I E**      **Character with decimal value *n* does not belong to the PL/I character set. It is assumed to be an OR symbol.**

## Explanation

The indicated character is not part of the PL/I character set, but was immediately followed by the same character. This can occur if a program containing an OR symbol is ported from another machine and this symbol is translated to a character that is not part of the PL/I character set. Using the OR compiler option can help avoid this problem.

---

**IBM3557I E**      **Character with decimal value *n* does not belong to the PL/I character set. It is assumed to be a NOT symbol.**

## Explanation

The indicated character is not part of the PL/I character set, but was immediately followed by an =, < or > symbol. This can occur if a program containing a NOT symbol is ported from another machine and this symbol is translated to a character that is not part of the PL/I character set. Using the NOT compiler option can help avoid this problem.

---

**IBM3558I E**      **WX literals should contain a multiple of 4 hex digits.**

## Explanation

WX literals must represent unicode strings and hence must contain a multiple of 4 hex digits.

```
x = '00'wx;
```

---

**IBM3559I E**      **RULES(NOGOTO) violation: the use of EXEC SQL WHENEVER statements violates RULES(NOGOTO).**

## Explanation

EXEC SQL WHENEVER statements will lead to the generation of GOTO statements and hence violate RULES(NOGOTO).

---

**IBM3560I E**      **RULES(NOGOTO) violation: the use of EXEC CICS HANDLE CONDITION statements violates RULES(NOGOTO).**

## Explanation

EXEC CICS HANDLE CONDITION statements create a form of GOTO and hence violate RULES(NOGOTO).

---

**IBM3565I E**      **Statement type resolution requires too many lexical units to**

**be examined. The statement will be ignored.**

## Explanation

To determine if a statement is an assignment or another PL/I statement, many elements of the statement may need to be examined. If too many have to be examined, the compiler will flag the statement as in error. For instance, the following statement could be a DECLARE until the equal sign is encountered by the lexer.

```
dcl ( a, b, c ) = d;
```

---

**IBM3567I E**      **Statements inside a SELECT must be preceded by a WHEN or an OTHERWISE clause.**

## Explanation

A WHEN or OTHERWISE might be missing.

```
select;
  i = i + 1;
  when ( a > 0 )
    ...
```

---

**IBM3568I E**      **Under RULES(NOLAXFIELDS), EXEC SQL SELECT statements must specify a list of field names.**

## Explanation

Under RULES(NOLAXFIELDS), EXEC SQL SELECT must be followed by one or more field names, not by an asterisk.

---

**IBM3569I E**      **Under RULES(NOLAXFIELDS), EXEC SQL INSERT INTO statements must specify a list of field names.**

## Explanation

Under RULES(NOLAXFIELDS), EXEC SQL INSERT INTO <table-name> must be followed by one or more field names.

---

**IBM3570I E**      **Extent expression is negative. It will be replaced by the constant 1.**

## Explanation

Extents must be positive.

```
dcl x char(-10);
```

---

**IBM3571I E**      **The SQL and PL/I float options are inconsistent.**

## Explanation

The compiler option DEFAULT(IEEE|HEXADEC) does not match the SQL preprocessor option FLOAT(IEEE|S390). Make sure they are consistent and resubmit your job.

---

**IBM3572I E**      **Initial level number in a structure is not 1.**

## Explanation

The level-1 DECLARE statement might be missing.

```
dcl
  2 a,
  3 b,
  3 c,
```

---

**IBM3573I E**      **Elements with level numbers greater than 1 follow an element without a level number. A level number of 1 is assumed.**

## Explanation

A structure level is probably missing.

```
dcl
  a,
  2 b,
  2 c,
```

---

**IBM3574I E**      **Variables declared without a name must be structure members or followed by a substructure list.**

## Explanation

The use of an asterisk in place of a name is permitted only for structure or union names or for members of structures or unions. An asterisk must not be used for a level-1 structure name that specifies the LIKE attribute.

```
dcl a fixed bin(15), * char(20) static
init('who can use me');
```

**IBM3575I E**      **Duplicate specification of *attribute*. Subsequent specification ignored.**

**Explanation**

Attributes such as CHAR must not be repeated for an element of a DECLARE statement.

```
dcl a char(10) char(20);
```

**IBM3576I E**      **The SQL statement is empty and is ignored.**

**Explanation**

EXEC SQL statements must consist of more than merely EXEC SQL.

**IBM3577I E**      **INONLY option is ignored because preceded by other options.**

**Explanation**

The INONLY option must be specified without any other options.

**IBM3580I E**      **Parameter *keyword* may not be set more than once. First setting is assumed.**

**Explanation**

In a statement-form procedure invocation, each parameter must be specified only once. Any subsequent specifications will be ignored. In the example code, 17 would be returned for both invocations of P.

```
%p: proc( a ) stmt returns( char );
    dcl a char;
    return( a );
%end;
%act p;

display( p a(17) a(29); );

display( p(17) a(29); );
```

**IBM3581I E**      **Unknown keyword in statement-form PROCEDURE invocation. *keyword* and any argument are ignored.**

**Explanation**

In a statement-form procedure invocation, any keyword specified must be the name of a parameter for that procedure.

```
%p: proc( a ) stmt returns( char );
    dcl a char;
    return( a );
%end;
%act p;

display( p a(17) b(29); );
```

**IBM3582I E**      **Parameter *identifier* is not declared.**

**Explanation**

Each parameter in a procedure should be declared.

```
%a: proc( b, c );
    dcl b fixed;
%end;
```

**IBM3583I E**      **Labels on *keyword* statements are invalid and ignored.**

**Explanation**

Labels are not permitted on DECLARE statements or on WHEN and OTHERWISE clauses.

**IBM3589I E**      **The identifier *identifier* is not the name of a built-in function. The BUILTIN attribute will be ignored.**

**Explanation**

The BUILTIN attribute can be applied only to identifiers that are the names of built-in functions or subroutines.

**IBM3590I E**      **The attribute *keyword* is not supported and will be ignored.**

**Explanation**

The named attribute is not supported by the macro facility.

```
%dcl a char external;
```

**IBM3591I E**      **Right parenthesis will be assumed at end of argument list.**

## Explanation

A right parenthesis is probably missing. If this occurs in the source, all the characters after the unmatched left parenthesis in the source will be interpreted as parameters to the function. If this occurs in a replacement string, all the characters after the unmatched left parenthesis in the string will be interpreted as parameters to the function.

---

**IBM3603I E**      **The end of the source was reached before the logical end of the program. Null statements and END statements will be inserted as necessary to complete the program.**

## Explanation

The source should contain END statements for all PROCEDURES, DO groups, and SELECT statements, as well as statements for all IF-THEN and ELSE clauses.

---

**IBM3604I E**      **The PROCEDURE name *proc-name* has already been declared. The explicit declaration of the PROCEDURE name will not be accepted.**

## Explanation

Declarations for internal procedures are not permitted.

```
a: proc;
  dcl b entry options(byvalue);
  b: proc;
```

---

**IBM3605I E**      **The *type type type type name* is already defined. The redefinition is ignored.**

## Explanation

An ORDINAL type may be defined only once in any block.

---

**IBM3606I E**      **Repeated declaration of *identifier* is invalid. The name will be replaced by an asterisk.**

## Explanation

The variable names at any given sublevel within a structure or union must be unique.

```
dcl 1 a, 2 b fixed, 2 b float;
```

---

**IBM3607I E**      **UNSIGNED attribute for *type type type type name* conflicts with negative INITIAL values and is ignored.**

## Explanation

If an ORDINAL type is declared with the UNSIGNED attribute, any INITIAL values specified must be nonnegative.

---

**IBM3608I E**      **PRECISION specified for *type type type type name* is too small to cover its INITIAL values and is adjusted to fit.**

## Explanation

An ORDINAL type must have a precision larger enough to cover the range of values defined for it.

```
define ordinal
  colors
  ( red      init(0),
    orange   init(256)
    yellow   init(512) ) unsigned prec(8);
```

---

**IBM3609I E**      **A SELECT statement may be missing. A SELECT statement, without an expression, will be inserted.**

## Explanation

A WHEN or OTHERWISE clause has been found outside of a SELECT statement.

---

**IBM3610I E**      **Semicolon inserted after ELSE keyword.**

## Explanation

An END statement enclosing a statement such as DO or SELECT has been found before the statement required after ELSE.

```
do;
  if a > b then
    ...
  else
  end;
```

---

**IBM3612I E**      **Semicolon inserted after OTHERWISE keyword.**

### Explanation

An END statement might be misplaced or a semicolon might be missing.

---

<b>IBM3613I E</b>	<b>Semicolon inserted after THEN keyword.</b>
-------------------	---

---

### Explanation

An END statement might be misplaced or a semicolon might be missing.

---

<b>IBM3614I E</b>	<b>Semicolon inserted after WHEN clause.</b>
-------------------	--

---

### Explanation

An END statement might be misplaced or a semicolon might be missing.

---

<b>IBM3615I E</b>	<b>Source file does not end with the logical end of the program.</b>
-------------------	--

---

### Explanation

The source file contains statements after the END statement that closed the first PACKAGE or PROCEDURE. These statements will be ignored, but their presence may indicate a programming error.

---

<b>IBM3616I E</b>	<b>Subscripts have been specified for the variable <i>variable name</i>, but it is not an array variable.</b>
-------------------	---

---

### Explanation

Subscripts can be specified only for elements of an array.

---

<b>IBM3617I E</b>	<b>Second argument in SUBSTR reference is less than 1. It will be replaced by 1.</b>
-------------------	--

---

### Explanation

Otherwise the STRINGRANGE condition would be raised.

---

<b>IBM3618I E</b>	<b>Second argument in SUBSTR reference is too big. It will be trimmed to fit.</b>
-------------------	---

---

### Explanation

Otherwise the STRINGRANGE condition would be raised.

---

<b>IBM3619I E</b>	<b>Third argument in SUBSTR reference is less than 0. It will be replaced by 0.</b>
-------------------	---

---

### Explanation

Otherwise the STRINGRANGE condition would be raised.

---

<b>IBM3620I E</b>	<b>Third argument in SUBSTR reference is too big. It will be trimmed to fit.</b>
-------------------	--

---

### Explanation

Otherwise the STRINGRANGE condition would be raised.

---

<b>IBM3621I E</b>	<b>More than 15 dimensions have been specified. Excess will be ignored.</b>
-------------------	---

---

### Explanation

The maximum number of dimensions allowed for a variable, including all inherited dimensions, is 15.

---

<b>IBM3624I E</b>	<b>End-of-comment marker found when there are no open comments. Marker will be ignored.</b>
-------------------	---

---

### Explanation

An \*/ was found when there was no open comment.

---

<b>IBM3625I E</b>	<b>There is no compiler directive <i>directive</i>. Input up to the next semicolon will be ignored.</b>
-------------------	---

---

### Explanation

See the Language Reference Manual for the list of supported compiler directives.

---

<b>IBM3626I E</b>	<b>Listing control statement must start with a percent symbol.</b>
-------------------	--

---

### Explanation

A listing control statement, even when in a preprocessor procedure, must be preceded by a "%".

```
%a: proc;  
    skip;  
%end;
```

---

<b>IBM3628I E</b>	<b>X literals should contain a multiple of 2 hex digits.</b>
-------------------	--

---

### Explanation

An X literal may not contain an odd number of digits.

---

**IBM3638I E**      **Excess arguments for ENTRY**  
**ENTRY name ignored.**

### Explanation

More arguments were specified in an ENTRY reference than were defined as parameters in that ENTRY's declaration.

```
dcl e entry( fixed bin );
call e( 1, 2 );
```

---

**IBM3639I E**      **Excess arguments for BUILTIN**  
**name built-in function are ignored.**

### Explanation

More arguments were specified for the indicated built-in function than are supported by that built-in function.

```
i = acos( j, k );
```

---

**IBM3640I E**      **The attribute *attribute* is invalid if**  
**it is not followed by an element**  
**with a greater logical level.**

### Explanation

The named attribute is valid only on parent structures.

```
dcl
  1 a,
  2 b union,
    2 c1 fixed bin(31),
    2 c2 float bin(21),
  ...
```

---

**IBM3641I E**      **Level number following LIKE**  
**specification is greater than**  
**the level number for the LIKE**  
**specification. LIKE attribute is**  
**ignored.**

### Explanation

LIKE cannot be specified on a parent structure or union.

```
dcl
  1 a like x,
  2 b,
  2 c,
```

---

**IBM3650I E**      **keyword keyword accepted**  
**although invalid under**  
**LANGLVL(SAA).**

### Explanation

The indicated keyword (UNSIGNED in the example below) is not defined in the SAA level-1 language.

```
dcl x fixed bin unsigned;
```

---

**IBM3651I E**      **Use of S, D and Q constants**  
**accepted although invalid under**  
**LANGLVL(SAA).**

### Explanation

The definition of the SAA level-1 language does not include S, D, and Q floating-point constants.

---

**IBM3652I E**      **Use of underscores in constants**  
**accepted although invalid under**  
**LANGLVL(SAA).**

### Explanation

The definition of the SAA level-1 language does not permit using underscores in numeric and hex constants.

---

**IBM3653I E**      **Use of asterisks for names in**  
**declares accepted although invalid**  
**under LANGLVL(SAA).**

### Explanation

The definition of the SAA level-1 language does not permit using asterisks for structure element names.

---

**IBM3654I E**      **Use of XN constants**  
**accepted although invalid under**  
**LANGLVL(SAA).**

### Explanation

The definition of the SAA level-1 language does not include XN constants.

---

**IBM3656I E**      **Use of 3 arguments with the**  
**BUILTIN name built-in function is**  
**accepted although invalid under**  
**LANGLVL(SAA).**

### Explanation

Under LANGLVL(SAA), the VERIFY and INDEX built-in functions are supposed to have exactly 2 arguments.

```
i = verify( s, j, k );
```

**IBM3657I E**      **Use of 1 argument with the *BUILTIN* name built-in function is accepted although invalid under LANTLRVL(SAA).**

### Explanation

Under LANTLRVL(SAA), the DIM, LBOUND and HBOUND built-in functions are supposed to have 2 arguments.

```
i = dim( a );
```

**IBM3658I E**      **The INCLUDE file *filename* has been deprecated.**

### Explanation

The named INCLUDE file was specified in the INCLUDE suboption of the DEPRECATE option, and so any attempt to include it is flagged.

**IBM3659I E**      **The EXEC SQL statement statement has been deprecated.**

### Explanation

The named statement was specified in the STMT suboption of the DEPRECATE option, and so any occurrence of it is flagged.

**IBM3660I E**      **The ENTRY named *variable* has been deprecated.**

### Explanation

The named ENTRY was specified in the ENTRY suboption of the DEPRECATE option, and so any use of it is flagged.

**IBM3661I E**      **Invalid use of question mark.**

### Explanation

Question marks are valid in the source only if part of one of the trigraphs ??( or ??).

**IBM3750I S**      *note*

### Explanation

This message is used to report DB2 or CICS backend messages with a return code of 12.

**IBM3751I S**      **A colon in an EXEC SQL statement must be followed by an identifier that starts a host variable reference.**

### Explanation

A colon in an EXEC SQL statement must be followed by a host variable reference, and such a reference must start with an identifier.

**IBM3752I S**      **Dot-qualified reference implies too many structure levels.**

### Explanation

Structures are limited to at most 15 logical levels, and so any dot-qualified reference must have at most 14 dots (or else it would imply the structure had at least 16 logical levels).

**IBM3753I S**      **Length in SQL TYPE IS *type name* is too large.**

### Explanation

The maximum length for BIN is 255 and for VARBINARY 32704. See the Programming Guide for the maximum lengths for BLOBs, CLOBs, and DBCLOBs.

**IBM3754I S**      **SQL TYPE IS *type name* must be followed by an opening left parenthesis.**

### Explanation

The correct syntax is SQL TYPE IS type( length ).

**IBM3755I S**      **SQL TYPE IS *type name* must have an integer specifying its length after the opening left parenthesis.**

### Explanation

The correct syntax is SQL TYPE IS type( length ).

**IBM3756I S**      **SQL TYPE IS *type name* must have a closing right parenthesis after the integer specifying its length.**

### Explanation

The correct syntax is SQL TYPE IS type( length ).

**IBM3757I S**      **SQL TYPE IS XML AS *type name* must be followed by an opening left parenthesis.**

## Explanation

The correct syntax is SQL TYPE IS XML AS type( length ).

---

<b>IBM3758I S</b>	<b>SQL TYPE IS XML AS <i>type name</i> must have an integer specifying its length after the opening left parenthesis.</b>
-------------------	---

---

## Explanation

The correct syntax is SQL TYPE IS XML AS type( length ).

---

<b>IBM3759I S</b>	<b>SQL TYPE IS XML AS <i>type name</i> must have a closing right parenthesis after the integer specifying its length.</b>
-------------------	---

---

## Explanation

The correct syntax is SQL TYPE IS XML AS type( length ).

---

<b>IBM3760I S</b>	<b>Too few arguments have been specified for the ENTRY <i>ENTRY name</i>.</b>
-------------------	---

---

## Explanation

The number of arguments must match the number of parameters in the ENTRY declaration.

---

<b>IBM3761I S</b>	<b>PROCEDURES may not be nested.</b>
-------------------	--------------------------------------

---

## Explanation

Macro procedures may not be nested.

---

<b>IBM3762I S</b>	<b>No percent statements are allowed inside PROCEDURES.</b>
-------------------	---

---

## Explanation

Inside a procedure, statements should not begin with a percent. The %DCL in the example below should be just DCL.

```
%a: proc( x ) returns( char );
    %dcl x char;
    return( '<' || x || '>' );
%end;
```

---

<b>IBM3763I S</b>	<b>Not enough virtual memory is available to continue the compile.</b>
-------------------	--

---

## Explanation

The compilation requires more virtual memory than is available. It may help to specify one or more of the following compiler options: NOINSOURCE, NOXREF, NOATTRIBUTES, and/or NOAGGREGATE

---

<b>IBM3764I S</b>	<b><i>BUILTIN name</i> argument must be a parameter.</b>
-------------------	--

---

## Explanation

An expression contains the named built-in function with an argument that is not a parameter.

---

<b>IBM3765I S</b>	<b><i>BUILTIN name</i> argument must be a reference.</b>
-------------------	--

---

## Explanation

An expression contains the named built-in function with an argument that is not a reference.

---

<b>IBM3766I S</b>	<b>Aggregate contains more than 15 logical levels.</b>
-------------------	--

---

## Explanation

The maximum physical level allowed is 255, but the maximum logical level is 15.

---

<b>IBM3767I S</b>	<b>Length in SQL TYPE IS <i>type name</i> must be greater than zero.</b>
-------------------	--

---

## Explanation

The length in BIN, VARBIN, BLOB, CLOB, and DBCLOB types must be positive.

---

<b>IBM3768I S</b>	<b>The use of asterisks as subscripts is not permitted in the macro facility.</b>
-------------------	---

---

## Explanation

In the macro facility, all subscripts must be scalar expressions.

---

<b>IBM3769I S</b>	<b>Argument to the <i>BUILTIN name</i> built-in function must have type CHARACTER(1) NONVARYING.</b>
-------------------	--

---

## Explanation

This applies to the RANK built-in function.

---

<b>IBM3770I S</b>	<b>First argument to the <i>BUILTIN name</i> built-in function must be an array.</b>
-------------------	--

---



## Explanation

An expression contains the named built-in function with a first argument that is not an array. This message applies, for instance, to the DIMENSION, HBOUND, and LBOUND built-in functions.

---

**IBM3771I S**      *note*

## Explanation

This message is used by %NOTE statements with a return code of 12.

---

**IBM3772I S**      **Third argument to the *BUILTIN name* built-in function would force STRINGRANGE.**

## Explanation

If a third argument is given for one of the built-in functions INDEX or VERIFY, it must be positive.

---

**IBM3773I S**      **Second argument to the *BUILTIN name* built-in function must be nonnegative.**

## Explanation

The second argument for the built-in functions CHARACTER, BIT, and GRAPHIC must be zero or greater.

---

**IBM3774I S**      **Too few arguments have been specified for the *BUILTIN name* built-in function.**

## Explanation

Supply the minimum number of arguments required.

---

**IBM3775I S**      **The *preprocessor name* preprocessor requires the DFT(EBCDIC) option.**

## Explanation

The use of the DFT(ASCII) option with either the CICS or SQL preprocessor is not supported.

---

**IBM3778I S**      **Syntax of the %INCLUDE statement is incorrect.**

## Explanation

%INCLUDE must be followed by a name and either a semicolon or else a second name in parenthesis and then a semicolon.

---

**IBM3779I S**      **File specification after %INCLUDE is too long.**

## Explanation

The maximum length of the file specification is 8 characters.

---

**IBM3780I S**      **File specification missing after %INCLUDE.**

## Explanation

%INCLUDE must be followed by a file name, not just a semicolon.

---

**IBM3781I S**      **PROCEDUREs may have no more than 63 parameters.**

## Explanation

The excess parameters will be removed from the proc statement.

---

**IBM3782I S**      **SQL TYPE IS XML must be followed by the keyword AS.**

## Explanation

The correct syntax is SQL TYPE IS XML AS type( length ).

---

**IBM3783I S**      **SQL TYPE IS XML AS must be followed by a valid type name.**

## Explanation

The correct syntax is SQL TYPE IS XML AS type( length ).

---

**IBM3784I S**      **SQL TYPE IS TABLE must be followed by the keyword LIKE.**

## Explanation

The correct syntax is SQL TYPE IS TABLE LIKE table-name AS LOCATOR.

---

**IBM3785I S**      **SQL TYPE IS TABLE LIKE must be followed by a table name.**

## Explanation

The correct syntax is SQL TYPE IS TABLE LIKE table-name AS LOCATOR.

---

**IBM3786I S**      **SQL TYPE IS TABLE LIKE must be followed by the keyword AS after the table name.**

## Explanation

The correct syntax is SQL TYPE IS TABLE LIKE table-name AS LOCATOR.

---

**IBM3787I S**      **SQL TYPE IS TABLE must be followed by the keyword LOCATOR after the table name and the AS keyword.**

---

### Explanation

The correct syntax is SQL TYPE IS TABLE LIKE table-name AS LOCATOR.

---

**IBM3788I S**      **SQL TYPE IS must be followed by a valid type name.**

---

### Explanation

The keywords SQL TYPE IS must be followed by a type name such as XML.

---

**IBM3789I S**      **Index number *index number* into the variable *variable name* is less than the lower bound for that dimension.**

---

### Explanation

Executing such a statement would most likely cause a protection exception.

```
%dcl a(5:10)  fixed;

%a(1) = 0;
```

---

**IBM3790I S**      **Index number *index number* into the variable *variable name* is greater than the upper bound for that dimension.**

---

### Explanation

Executing such a statement would most likely cause a protection exception.

```
%dcl a(5:10)  fixed;

%a(20) = 0;
```

---

**IBM3791I S**      **Each dimension of an array must contain no more than 2147483647 elements.**

---

### Explanation

It must be possible to compute the value of the DIMENSION built-in function for an array. For example, in DECLARE A(x:y), (y-x+1) must be less than 214748648.

---

**IBM3792I S**      **Array *variable name* has too many elements. Bounds set to 1.**

---

### Explanation

Arrays are limited to 2\*\*20 elements.

---

**IBM3793I S**      **Too few subscripts specified for the variable *variable name*.**

---

### Explanation

The number of subscripts given for a variable must match that variable's number of dimensions

---

**IBM3794I S**      **Too many subscripts specified for the variable *variable name*.**

---

### Explanation

The number of subscripts given for a variable must match that variable's number of dimensions

---

**IBM3795I S**      **Shift-out code has no closing shift-in code before the right margin.**

---

### Explanation

Every DBCS shift-out code between the margins must have a matching DBCS shift-in code also between the margins.

---

**IBM3796I S**      **Array expressions cannot be assigned to non-arrays, and if any target in a multiple assignment is an array, then all the targets must be arrays.**

---

### Explanation

Array expressions may not, for instance, be assigned to structures or scalars.

---

**IBM3797I S**      **RETURN statement without an expression is invalid inside a PROCEDURE that specified the RETURNS attribute.**

---

### Explanation

All RETURN statements inside functions must specify a value to be returned.

```
%a: proc returns( fixed );

    return;
%end;
```

---

**IBM3798I S**      **RETURN statement with an expression is invalid inside a**

---

**PROCEDURE that did not specify the RETURNS attribute.**

### Explanation

A statement of the form RETURN(x) is valid inside only PROCEDURES that are defined with a RETURNS attribute.

```
%a: proc;

    return( 'this is invalid' );
%end;
```

**IBM3799I S**      **The DECLARE statement for the host variable *reference* is not inside an SQL DECLARE SECTION.**

### Explanation

Under the SQL option STDSQL(YES), all host variables must be declared between SQL BEGIN DECLARE SECTION and SQL END DECLARE SECTION statements.

**IBM3800I S**      **Function *function name* contains no RETURN statement.**

### Explanation

Functions must contain at least one RETURN statement.

**IBM3801I S**      **Target in assignment is invalid.**

### Explanation

The target in an assignment must be character or fixed element reference. Pseudovariables are not supported.

**IBM3802I S**      **Statement labels may not be used in expressions.**

### Explanation

Statement labels must be used only in GOTO, LEAVE and ITERATE statements.

**IBM3803I S**      **Target in concatenate-equals assignment must have type CHAR.**

### Explanation

Compound concatenate assignments with fixed targets are not supported.

```
%dcl a fixed;
```

```
%a = '0';
%a || = '1';
```

**IBM3804I S**      **Target in arithmetic-equals assignment must have type FIXED.**

### Explanation

Compound arithmetic assignments with character targets are not supported.

```
%dcl a char;

%a = '0';
%a += '1';
```

**IBM3805I S**      **SQL TYPE IS XML *type* must be followed by the keyword LARGE.**

### Explanation

The correct syntax is SQL TYPE IS XML AS type LARGE OBJECT( length ).

**IBM3806I S**      **SQL TYPE IS XML *type* LARGE must be followed by the keyword OBJECT.**

### Explanation

The correct syntax is SQL TYPE IS XML AS type LARGE OBJECT( length ).

**IBM3807I S**      **SQL TYPE IS CHARACTER must be followed by the keyword LARGE.**

### Explanation

The correct syntax is SQL TYPE IS CHARACTER LARGE OBJECT( length ).

**IBM3808I S**      **SQL TYPE IS BINARY must be followed by the keyword LARGE or by a length enclosed in parentheses.**

### Explanation

The correct syntax is SQL TYPE IS BINARY LARGE OBJECT( length ) or SQL TYPE IS BINARY( length ).

**IBM3809I S**      **SQL TYPE IS *type* LARGE must be followed by the keyword OBJECT.**

### Explanation

The correct syntax is SQL TYPE IS type LARGE OBJECT( length ).

---

**IBM3810I S**      **Statement has too many labels.**

### Explanation

The compiler's limit on the number of labels on a statement has been exceeded. Reduce the number of labels on the statement.

---

**IBM3811I S**      **Expression contains too many nested subexpressions.**

### Explanation

The compiler's space for evaluating expressions has been exhausted. Rewrite the expression in terms of simpler expressions.

---

**IBM3812I S**      **Result of concatenating a string of length *string length* to a string of length *string length* would produce a string that is too long.**

### Explanation

The result of a concatenation must not have a length greater than the maximum allowed for a string.

---

**IBM3813I S**      **Result of *BUILTIN* name applied *repetition value* times to a string of length *string length* would produce a string that is too long.**

### Explanation

The result of COPY and REPEAT must not have a length greater than the maximum allowed for a string.

---

**IBM3814I S**      **Unsupported use of aggregate expression.**

### Explanation

The only valid aggregate expression is the use of an array name as the first argument to the HBOUND or LBOUND built-in functions.

---

**IBM3815I S**      **Operand in bit operation must have length less than 32768.**

### Explanation

Bit operations are limited to strings of length 32767 or less.

---

**IBM3816I S**      **Second and third arguments to the TRANSLATE built-in function must have length less than 32768.**

### Explanation

The TRANSLATE built-in function is not supported if the second or third argument is longer than 32767 characters.

---

**IBM3817I S**      **Result of *BUILTIN* name would exceed maximum string length.**

### Explanation

The result of a COMMENT or QUOTE built-in function must not be a string that would have length greater than the supported maximum.

---

**IBM3820I S**      **Under the INONLY option, the use of INCLUDE or XINCLUDE as a macro PROCEDURE name is invalid unless the colon follows immediately after the name.**

### Explanation

If you must use INCLUDE or XINCLUDE as a macro name, put the colon on the same line as the name.

---

**IBM3821I S**      **Under the INONLY option, the use of INCLUDE or XINCLUDE as a macro statement label is invalid unless the colon follows immediately after the name.**

### Explanation

If you must use INCLUDE or XINCLUDE as a macro statement label, put the colon on the same line as the name.

---

**IBM3822I S**      **Under the INONLY option, the use of INCLUDE or XINCLUDE as a macro variable that is the target of an assignment is invalid unless the equals sign follows immediately after the name.**

### Explanation

If you must use INCLUDE or XINCLUDE as a macro variable name, put the equals sign in the assignment on the same line as the name. For example, change the first assignment below into the second.

```
%xinclude
= 17;

%xinclude = 17;
```

---

**IBM3823I S**      **A QUALIFY block may contain only DEFINE statements, DECLARE**

statements, and nested QUALIFY blocks.

### Explanation

DEFAULT statements, for example, are not allowed in QUALIFY blocks.

---

**IBM3824I S**      **A name declared in a QUALIFY block must be a scalar.**

### Explanation

A DECLARE statement in a QUALIFY block cannot specify a structure, union or array.

---

**IBM3825I S**      **A name declared in a QUALIFY block must have the VALUE attribute.**

### Explanation

A DECLARE statement in a QUALIFY block cannot specify a variable or a constant unless it has the VALUE attribute.

---

**IBM3826I S**      **The type name *type name* is ambiguous.**

### Explanation

Enough qualification must be provided to make any type reference unique.

---

**IBM3827I S**      ***type name* is a type name, but not the name of an ORDINAL type.**

### Explanation

In a declare statement that specifies ORDINAL x, x must be the name of an ORDINAL type.

---

**IBM3828I S**      **The DEFINE ORDINAL statement does not specify a PRECISION attribute. This is valid only if all the VALUE expressions in the statement are (possibly signed) integers or if the DEFAULT(ORDINAL(MAX)) compiler option is in effect.**

### Explanation

If all the VALUE expressions in a DEFINE ORDINAL statement are integers or signed integers, then the PRECISION attribute may be omitted from the statement.

---

**IBM3837I S**      **GOTO target is inside a (different) DO loop.**

### Explanation

The target of a GOTO cannot be inside a DO loop unless the GOTO itself is in the same DO loop.

---

**IBM3841I S**      **The INCLUDE file *include-file-name* could not be opened.**

### Explanation

The INCLUDE file could not be found, or if found, it could not be opened.

---

**IBM3842I S**      **Statements are nested too deep.**

### Explanation

The nesting of PROCEDURE, DO, SELECT and similar statements is greater than that supported by the compiler. Rewrite the program so that it is less complicated.

---

**IBM3844I S**      **The *function name* built-in function is not supported.**

### Explanation

Support for the indicated built-in function has been discontinued.

---

**IBM3846I S**      **The *keyword* statement is not supported.**

### Explanation

Support for the indicated statement has been discontinued.

---

**IBM3848I S**      **Use of iSUB is not supported.**

### Explanation

iSUB is only supported in syntax checking.

---

**IBM3849I S**      ***type name* is not a type name.**

### Explanation

If TYPE x is used in a declaration, x must be a defined type.

---

**IBM3850I S**      **TYPEs must be defined before their use.**

### Explanation

The DEFINE STRUCTURE or DEFINE ALIAS statement for a type x must precede any of use of x as attribute type. The following two statements should be in the opposite order.

```
dcl x type point;

define structure
  1 point
    2 x fixed bin(31),
    2 y fixed bin(31);
```

---

**IBM3851I S**      **INITIAL values for *type type type* *type name* must be in increasing order.**

### Explanation

Any values specified in INITIAL clauses in an ORDINAL definition must be in strictly increasing order.

---

**IBM3852I S**      **INITIAL values for *type type type* *type name* must be less than 2G.**

### Explanation

ORDINAL values must fit in the range of a FIXED BIN(31) variable.

---

**IBM3853I S**      **Nesting of DO statements exceeds the maximum.**

### Explanation

DO statements can be nested only 100 deep. Simplify the program.

---

**IBM3854I S**      **Nesting of IF statements exceeds the maximum.**

### Explanation

IF statements can be nested only 100 deep. Simplify the program.

---

**IBM3855I S**      **Nesting of SELECT statements exceeds the maximum.**

### Explanation

SELECT statements can be nested only 50 deep. Simplify the program.

---

**IBM3856I S**      **Nesting of blocks exceeds the maximum.**

### Explanation

Blocks must be nested only 30 deep.

---

**IBM3857I S**      **Only one description is allowed in a structure definition.**

## Explanation

The syntax allows the name in a structure definition to be followed by a description list, but that description list must consist of exactly one structure description. The following is invalid:

```
define structure
  1 point
    2 x fixed bin(31),
    2 y fixed bin(31),
  1 rectangle
    2 upper_left type point,
    2 lower_right type point;
```

---

**IBM3858I S**      **All the names in the ORDINAL *ordinal-name* have been previously declared.**

### Explanation

None of the names in an ORDINAL should have been declared elsewhere. If they are, perhaps the ORDINAL definition has been accidentally repeated.

---

**IBM3859I S**      **Storage attributes are invalid in structure definition.**

### Explanation

Storage attributes, such as AUTOMATIC and BYADDR, must be specified with variables declared with structure type.

---

**IBM3860I S**      **DEFINE STRUCTURE may not specify an array of structures.**

### Explanation

The level 1 name in a structure definition may not have the DIMENSION attribute.

---

**IBM3861I S**      **Open of dbrm dataset failed.**

### Explanation

The open of the .dbrm dataset to be used by the SQL preprocessor failed. A possible cause might be lack of write authority to the compile directory.

---

**IBM3862I S**      **Dynamic allocation of DBRMLIB failed with the SVC 99 info code *info-code* and the SVC 99 error code *error-code* .**

### Explanation

The dynamic allocation of the DBRMLIB failed with the indicated SVC 99 info and error codes.

---

<b>IBM3863I S</b>	<b>The DBRMLIB compiler option must be specified.</b>
-------------------	---

---

### Explanation

In order to perform a compile using the SQL preprocessor without the INONLY option, you must specify the DBRMLIB compiler option.

---

<b>IBM3870I S</b>	<b>The FETCH of the CICS backend failed.</b>
-------------------	--

---

### Explanation

Check that the CICS modules are accessible, otherwise report this error to IBM.

---

<b>IBM3871I S</b>	<b>The CICS backend reported an internal error while attempting to perform its initialization.</b>
-------------------	--

---

### Explanation

Report this error to IBM.

---

<b>IBM3872I S</b>	<b>The CICS backend reported an internal error while attempting to parse its options.</b>
-------------------	---

---

### Explanation

Report this error to IBM.

---

<b>IBM3873I S</b>	<b>The CICS backend reported an internal error while attempting to build and emit the local declares.</b>
-------------------	---

---

### Explanation

Report this error to IBM.

---

<b>IBM3874I S</b>	<b>The CICS backend reported an internal error while attempting to translate an EXEC statement.</b>
-------------------	---

---

### Explanation

Report this error to IBM.

---

<b>IBM3875I S</b>	<b>The CICS backend reported an internal error while attempting to translate a CICS macro (such as DFHVALUE).</b>
-------------------	---

---

### Explanation

Report this error to IBM.

---

<b>IBM3876I S</b>	<b>The CICS backend reported an internal error while attempting to perform its termination.</b>
-------------------	---

---

### Explanation

Report this error to IBM.

---

<b>IBM3877I S</b>	<b>The SQL backend reported an internal error while attempting to perform its initialization.</b>
-------------------	---

---

### Explanation

Report this error to IBM.

---

<b>IBM3878I S</b>	<b>SQL initialization did not complete successfully.</b>
-------------------	--

---

### Explanation

See the additional messages produced by the SQL backend.

---

<b>IBM3880I S</b>	<b>The reference <i>reference</i> could not be resolved.</b>
-------------------	--

---

### Explanation

All SQL host variables must be declared within the current block scope.

---

<b>IBM3881I S</b>	<b>The reference <i>reference</i> is ambiguous.</b>
-------------------	---

---

### Explanation

All SQL host variables must be unambiguous. This can be fixed by supplying enough structure qualification.

---

<b>IBM3882I S</b>	<b>The indicator array <i>reference</i> must have only one dimension.</b>
-------------------	---

---

### Explanation

An indicator array in an EXEC SQL statement must not be multi-dimensional.

---

<b>IBM3883I S</b>	<b>The indicator array <i>reference</i> must have constant bounds.</b>
-------------------	--

---

### Explanation

An indicator array in an EXEC SQL statement must have bounds that are specified simply as optionally signed integers.

---

<b>IBM3884I S</b>	<b>The indicator variable <i>reference</i> is used with a structure and hence must be an array or a structure.</b>
-------------------	--

---

### Explanation

An indicator variable for a structure in an EXEC SQL statement must be an array or a structure.

---

<b>IBM3885I S</b>	<b>The host variable <i>host-variable</i> must have only one dimension.</b>
-------------------	---

---

### Explanation

A host variable in an EXEC SQL statement must not be multi-dimensional.

---

<b>IBM3886I S</b>	<b>The host variable <i>host-variable</i> must have constant bounds.</b>
-------------------	--

---

### Explanation

A host variable in an EXEC SQL statement must have bounds that are specified simply as optionally signed integers.

---

<b>IBM3887I S</b>	<b>The host variable <i>host-variable</i> must be CONNECTED.</b>
-------------------	--

---

### Explanation

A host variable in an EXEC SQL statement must be one-dimensional and that dimension must not be specified on a parent unless the parent has the DIMACROSS attribute.

---

<b>IBM3888I S</b>	<b>The reference <i>host-reference</i> has no corresponding DB2 type.</b>
-------------------	---

---

### Explanation

All SQL host variables must have a corresponding DB2 type. For example, while FIXED DEC(7,-2) is valid in a PL/I declaration, there is no corresponding DB2 type because DB2 requires that in FIXED DEC(p,q), q is non-negative and no greater than p.

---

<b>IBM3889I S</b>	<b>The reference <i>host-reference</i> is a union and thus must not be used as a host variable.</b>
-------------------	---

---

### Explanation

All SQL host variables must have a corresponding DB2 type. There is no type matching a union.

---

<b>IBM3890I S</b>	<b>The reference <i>host-reference</i> is an array of structures and thus must not be used as a host variable.</b>
-------------------	--

---

### Explanation

A structure may be used as a host variable only if it is not an array.

---

<b>IBM3891I S</b>	<b>Since the structure reference <i>host-reference</i> contains an array, it must not have an indicator that is a scalar or an array of scalars.</b>
-------------------	--

---

### Explanation

A structure containing an array may be used as a host variable with an indicator variable only if that indicator variable is a similar structure.

---

<b>IBM3892I S</b>	<b>The reference <i>host-reference</i> contains a substructure and thus must not be used as a host variable.</b>
-------------------	--

---

### Explanation

A structure may be used as a host variable only if none of its members are structures.

---

<b>IBM3893I S</b>	<b>The reference <i>host-reference</i> contains unnamed elements and thus must not be used as a host variable.</b>
-------------------	--

---

### Explanation

A structure may be used as a host variable only if all of its members are named.

---

<b>IBM3894I S</b>	<b>The indicator variable <i>reference</i> must be FIXED BIN(15).</b>
-------------------	---

---

### Explanation

An indicator variable must be a native, real halfword integer.

---

<b>IBM3895I S</b>	<b>The indicator variable <i>reference</i> is used with an array and hence must be an array as well.</b>
-------------------	--

---

### Explanation

An indicator variable in an EXEC SQL statement must be an array if it is used with an array.

---

<b>IBM3896I S</b>	<b>The VALUE reference <i>host-reference</i> could not be reduced to a character literal and thus must not be used as a host variable.</b>
-------------------	--

---

### Explanation

A reference with the VALUE attribute may be used as a host variable with the SQL characterl type if it can be reduced to a CHARACTER literal. See the Programming Guide for more details.

---

<b>IBM3897I S</b>	<b>The VALUE reference <i>host-reference</i> could not be reduced to a numeric literal and thus must not be used as a host variable.</b>
-------------------	--

---



### Explanation

A reference with the VALUE attribute may be used as a host variable with the SQL integer or decimal type if it can be reduced to a REAL FIXED literal. See the Programming Guide for more details.

<b>IBM3898I S</b>	<b>The VALUE reference <i>host-reference</i> does not have character, integer or decimal type and thus must not be used as a host variable.</b>
-------------------	---

### Explanation

A reference with the VALUE attribute may be used as a host variable only if it has a SQL type of character, integer or decimal.

<b>IBM3899I S</b>	<b>The reference <i>reference name</i> is ambiguous.</b>
-------------------	--

### Explanation

Enough qualification must be provided to make any reference unique.

<b>IBM3900I S</b>	<b>The dot-qualified reference <i>reference name</i> is unknown.</b>
-------------------	--

### Explanation

The named reference is not a member of any structure or union declared in the block in which it is referenced or declared in any block containing that block.

<b>IBM3901I S</b>	<b>The element <i>reference name</i> in the indicator structure must have the same array bounds as the corresponding element in the host structure.</b>
-------------------	---

### Explanation

In :x:y, if x and y are both structures, then for any element of y that is an array, the corresponding element of x must be an array with the same bounds and vice versa.

<b>IBM3902I S</b>	<b>Argument to the <i>BUILTIN name</i> built-in function must be a structure.</b>
-------------------	---

### Explanation

The argument to the named built-in subroutine must be a structure.

<b>IBM3903I S</b>	<b>The indicator <i>reference name</i> must not be a UNION.</b>
-------------------	---

### Explanation

In :x:y, y must not be a union.

<b>IBM3909I S</b>	<b>The <i>attribute</i> attribute conflicts with the <i>attribute</i> attribute.</b>
-------------------	--

### Explanation

The named attributes, for example PARAMETER and INITIAL, are mutually exclusive.

<b>IBM3911I S</b>	<b>The statement label <i>identifier</i> has already been declared.</b>
-------------------	---

### Explanation

All statement labels in any block must be unique.

<b>IBM3914I S</b>	<b>GOTO target must be a LABEL reference.</b>
-------------------	---

### Explanation

x in GOTO x must have type LABEL. x must not have type FORMAT.

<b>IBM3915I S</b>	<b>GOTO target must be a scalar.</b>
-------------------	--------------------------------------

### Explanation

x in GOTO x must not be an array.

<b>IBM3916I S</b>	<b>The PROCEDURE <i>proc-name</i> has already been defined.</b>
-------------------	---

### Explanation

Sister procedures must have different names.

```
% b: proc;  
% end;  
% b: proc;  
% end;
```

<b>IBM3917I S</b>	<b>Program contains no valid source lines.</b>
-------------------	--

### Explanation

The source contains either no statements or all statements that it contains are invalid.

<b>IBM3920I S</b>	<b>FIXED BINARY constant contains too many digits.</b>
-------------------	--

### Explanation

A FIXED BINARY constant must contain 31 or fewer digits.

---

**IBM3921I S**      **FIXED DECIMAL constant contains too many significant digits.**

---

### Explanation

The maximum precision of FIXED DECIMAL constants is set by the FIXEDDEC suboption of the LIMITS compiler option.

---

**IBM3922I S**      **Exponent in FLOAT BINARY constant contains more digits than the implementation maximum.**

---

### Explanation

The exponent in a FLOAT BINARY constant may contain no more than 5 digits.

---

**IBM3923I S**      **Mantissa in FLOAT BINARY constant contains more significant digits than the implementation maximum.**

---

### Explanation

The mantissa in a FLOAT BINARY constant may contain no more than 64 digits.

---

**IBM3924I S**      **Exponent in FLOAT DECIMAL constant contains more digits than the implementation maximum.**

---

### Explanation

The exponent in a FLOAT BINARY constant may contain no more than 4 digits.

---

**IBM3925I S**      **Mantissa in FLOAT DECIMAL constant contains more significant digits than the implementation maximum.**

---

### Explanation

The mantissa in a FLOAT BINARY constant may contain no more than 18 digits.

---

**IBM3926I S**      **Constants must not exceed 30720 bytes.**

---

### Explanation

The number of bytes used to represent a constant in your program must not exceed 30720. This limit holds even for bit strings where the internal representation will consume only one-eighth the number of bytes as the external representation does.

---

**IBM3927I S**      **Numeric constants must be real, unscaled and fixed.**

---

### Explanation

Any complex, scaled or floating point constant will be converted to an integer value.

```
%a = 3.1415;
```

---

**IBM3928I S**      **Only B, BX and X string suffixes are supported.**

---

### Explanation

G, GX, M, A and E string suffixes are not supported.

```
%a = '31'e;
```

---

**IBM3929I S**      **EXEC SQL statement must be in a PROCEDURE.**

---

### Explanation

The only EXEC SQL statements allowed at the PACKAGE level are EXEC SQL BEGIN DECLARE SECTION, EXEC SQL END DECLARE SECTION, nonexecutable EXEC SQL DECLARE, and EXEC SQL INCLUDE other than EXEC SQL INCLUDE SQLCA and EXEC SQL INCLUDE SQLDA.

---

**IBM3930I S**      **Invalid syntax in statement-form of PROCEDURE invocation. Text up to next semicolon will be ignored.**

---

### Explanation

In the invocation of a statement-form procedure, all characters that are not part of comments or key names should be enclosed in parentheses following one of the keys. For example, the "+" in the display statement below should not be present.

```
%a: proc( x ) stmt returns( char );
      dcl x char;
      return( 1729 );
%end;
%act a;

display( a + x(5); );
```

---

**IBM3931I S**      **Under the FIXED(DEC) option, decimal constants must have no more than 5 digits.**

---

## Explanation

Under the FIXED(BIN) option, decimal constants that represent any valid FIXED BIN(31) number are supported.

---

<b>IBM3932I S</b>	<b>Fixed binary constants with more than 31 digits are not supported in macro preprocessor statements.</b>
-------------------	--

---

## Explanation

Fixed binary constants (such as 1001b) used in macro statements must have no more than 31 digits.

---

<b>IBM3933I S</b>	<b>XN and XU constants with more than 8 hex characters are not supported in macro preprocessor statements.</b>
-------------------	--

---

## Explanation

XN and XU constants used in macro statements must have no more than 8 hex characters.

---

<b>IBM3934I S</b>	<b>EXEC SQL INCLUDE statement has incorrect syntax.</b>
-------------------	---

---

## Explanation

EXEC SQL INCLUDE must be followed by one identifier and then by a semicolon.

---

<b>IBM3935I S</b>	<b>The FETCH of the SQL backend failed.</b>
-------------------	---

---

## Explanation

Check that the SQL modules are accessible, otherwise report this error to IBM.

---

<b>IBM3936I S</b>	<b>The SQL backend must be from DB2 V9 or later.</b>
-------------------	--

---

## Explanation

Switch to a more current level of DB2.

---

<b>IBM3937I S</b>	<b>EXEC SQL statement is too long.</b>
-------------------	--

---

## Explanation

Each EXEC SQL statement must be less than 500K bytes long.

---

<b>IBM3938I S</b>	<b>EXEC SQL statement has too many host variable references.</b>
-------------------	--

---

## Explanation

Each EXEC SQL statement must require no more than 10,000 tokens. Each host variable that is a structure but not a SQLDA requires as many tokens as it has members. All other host variables require one token.

---

<b>IBM3939I S</b>	<b>The DBNAME option must specify a valid database name.</b>
-------------------	--

---

## Explanation

When invoking the SQL preprocessor on Windows or AIX, the DBNAME option must be specified, and the option must specify a valid database name.

---

<b>IBM3943I S</b>	<b>The number of error messages allowed by the FLAG option has been exceeded.</b>
-------------------	---

---

## Explanation

Compilation will terminate when the number of messages has exceeded the limit set in the FLAG compiler option.

---

<b>IBM3948I S</b>	<b><i>condition-name</i> condition with ONCODE=<i>oncode-value</i> raised while evaluating expression.</b>
-------------------	--

---

## Explanation

Evaluation of an expression raised the named condition.

```
%a = a / 0;
```

---

<b>IBM3949I S</b>	<b>Parameter name <i>identifier</i> appears more than once in parameter list.</b>
-------------------	---

---

## Explanation

Each identifier in a parameter list must be unique.

```
a: proc( b, c, b );
```

---

<b>IBM3950I S</b>	<b>An asterisk iteration factor can be applied only to the last expression in the INITIAL item list for <i>variable-name</i>.</b>
-------------------	---

---

## Explanation

Since an asterisk iteration factor completes the initialization of a variable, it cannot be followed by more initial values.

```
%dcl a(10) fixed init( 1, 2, (*) 0, 8 );
```

**IBM3951I S**      **An asterisk iteration factor cannot be used in the nested INITIAL item list for *variable-name*.**

### Explanation

An asterisk iteration can be used only in a non-nested INITIAL item list. The following example is invalid.

```
%dcl a(20) fixed init( (2) ( 1, (*) 2 ) );
```

**IBM3952I S**      **INITIAL attribute on the parameter *variable-name* is invalid.**

### Explanation

A parameter cannot have an INITIAL attribute.

**IBM3953I S**      **INITIAL list contains *count* items, but the array *variable name* contains only *array size*. Excess is ignored.**

### Explanation

For an array, an INITIAL list should not contain more values than the array has elements.

```
%dcl b(5) init( (10) 0 );
```

**IBM3956I S**      **ITERATE is valid only for iterative DO-groups.**

### Explanation

ITERATE is not valid inside type-I do groups.

**IBM3957I S**      **RETURN statement outside of a PROCEDURE is invalid.**

### Explanation

RETURN statements are valid only inside procedures.

**IBM3958I S**      **INCLUDE statement inside of a PROCEDURE is invalid.**

### Explanation

INCLUDE statements are permitted only outside any preprocessor procedures.

```
%a: proc;
    include sample;
%end;
```

**IBM3959I S**      **Length of parameter exceeds 32767 bytes.**

### Explanation

Parameters to macro procedures must be no longer than 32767 bytes.

**IBM3960I S**      **End-of-source has been encountered after an unmatched comment marker.**

### Explanation

An end-of-comment marker is probably missing.

**IBM3961I S**      **End-of-source has been encountered after an unmatched quote.**

### Explanation

A closing quote is probably missing.

**IBM3962I S**      **Replacement value contains no end-of-comment delimiter. A comment delimiter will be assumed at the end of the replacement value.**

### Explanation

An end-of-comment marker is probably missing.

**IBM3963I S**      **Replacement value contains no end-of-string delimiter. A string delimiter will be assumed at the end of the replacement value.**

### Explanation

A closing quote is probably missing.

**IBM3964I S**      **ANSWER statement outside of a PROCEDURE is invalid.**

### Explanation

ANSWER statements are valid only inside procedures.

---

**IBM3965I S**      **ANSWER statement inside of a PROCEDURE with RETURNS is invalid.**

---

### Explanation

ANSWER statements are not valid inside functions.

```
%a: proc returns( char );
    answer( 'this is invalid' );
    return( 'this is ok however' );
%end;

%b: proc;
    answer( 'this is valid' );
%end;
```

---

**IBM3966I S**      **Source has caused too many RESCANs.**

---

### Explanation

A rescan of a replacement string or a rescan of a string returned by a preprocessor has caused further replacement leading to another rescan etc., and the maximum depth of rescanning was exceeded. For instance, the following macro, which is meant to count the number of dcl statements in a compilation, would produce this message. If the %ACTIVATE statement specified NORESCAN, it would work correctly.

```
%dcl dcl_Count fixed;
%dcl_Count = 0;

%dcl: proc returns( char );
    dcl_count = dcl_count + 1;
    return( 'dcl' );
%end;

%activate dcl;
```

---

**IBM3967I S**      **CALL statement outside of a PROCEDURE is invalid.**

---

### Explanation

CALL statements are valid only when they are inside macro procedures.

---

**IBM3968I S**      **CALL reference is undefined.**

---

### Explanation

CALL reference must be a declared macro procedure.

---

**IBM3969I S**      **CALL reference is not a macro entry.**

---

### Explanation

CALL reference must be a declared macro procedure.

---

**IBM3970I S**      **CALL reference must not be a function.**

---

### Explanation

A CALL reference must not have the RETURNS attribute.

---

**IBM3971I S**      **CALL reference must not have the STATEMENT option.**

---

### Explanation

A CALL reference must not have the STATEMENT option.

---

**IBM3972I S**      **End-of-file has been encountered after an unmatched comment marker.**

---

### Explanation

An end-of-comment marker is probably missing.

---

**IBM3973I S**      **End-of-file has been encountered after an unmatched quote.**

---

### Explanation

A closing quote is probably missing.

---

**IBM3974I S**      **Every shift-in character after the left margin of a source line must have a matching shift-out character before the right margin of the same line.**

---

### Explanation

DBCS shift codes must be paired.

---

**IBM3975I S**      **Every shift-in character within a string generated for RESCAN must have a matching shift-out character within that same string.**

---

### Explanation

DBCS shift codes must be paired.

---

**IBM3976I S**      **DBCS characters are allowed only in G and M constants.**

---

### Explanation

Hex strings (strings ending in one of the suffixes X, BX, B4, GX or XN), bit strings, (strings ending in the suffix

B), and character strings not ending in the suffix M must contain only SBCS characters.

---

**IBM3977I S      SBCS characters are not allowed in G constants.**

---

### Explanation

Mixed SBCS and DBCS is allowed only in M constants.

---

**IBM3978I S      Invalid use of SBCS encoded as DBCS.**

---

### Explanation

Outside of comments, SBCS can be encoded as DBCS only as part of an identifier.

---

**IBM3979I S      UX literal specifies an invalid UTF-8 string.**

---

### Explanation

Not all hex strings represent valid UTF-8 strings. For more details on valid UTF-8 strings, see the LRM and the text describing the UVALID built-in function.

---

**IBM3980I S      Recursion of PROCEDURES is not allowed.**

---

### Explanation

A procedure must not invoke itself directly or indirectly.

---

**IBM3981I S      BUILTIN function may not be used outside a PROCEDURE.**

---

### Explanation

The named built-in function may be used only inside procedures.

---

**IBM3982I S      PROCEDURE *procedure-name* is undefined and cannot be invoked.**

---

### Explanation

A procedure must be defined (correctly) before it can be invoked.

---

**IBM3983I S      Premature end-of-source in SCAN.**

---

### Explanation

The source ended during a scan when a right parenthesis or semicolon was required.

```
%a: proc() stmt returns( char );
      return( '1729' );
```

```
%end;
%dc1 a entry;

a /* and no more source follows */
```

---

**IBM3984I S      File *filename* could not be opened.**

---

### Explanation

The named source file could not be opened. Make sure that the file is named correctly, that it exists and that it is readable.

---

**IBM3985I S      Semicolon found before required closing right parenthesis.**

---

### Explanation

A statement contained a semicolon before a right parenthesis which is needed to match an earlier left parenthesis in the statement.

```
select( a ; );
```

---

**IBM3986I S      IF statement syntax is invalid.**

---

### Explanation

A statement that appears to be an IF statement has invalid syntax.

```
if a > 0 ; then
```

---

**IBM3987I S      Statement must start with a keyword or assignment target.**

---

### Explanation

After any condition prefixes and labels, statements must start with either a keyword or, if the statement is an assignment statement, it must start with an identifier or BIND reference. The flagged statement starts with some other lexical element. This may indicate that a semicolon that is meant for the previous statement is misplaced or that an element of this statement has been erroneously omitted.

```
a =0 b; = a;
```

---

**IBM3988I S      Statement has invalid syntax.**

---

### Explanation

The flagged statement is not valid PL/I. This may indicate that a semicolon that is meant for the previous statement is misplaced or that an element of this statement has been erroneously omitted.

```
put skip garbage;
```

**IBM3993I S**      **Internal preprocessor error: assertion failed on line *source line* in *procedure name* in *package name***

### Explanation

This message indicates that there is an error in the preprocessor. Report the problem to IBM.

**IBM3994I S**      **Source is not valid UTF-8.**

### Explanation

The source file contains lines that would be rejected by the UVALID built-in function.

**IBM3995I S**      **Generated text contains invalid UTF-8.**

### Explanation

The text produced by an ANSWER or RETURNS statement would be rejected by the UVALID built-in function.

**IBM3996I S**      **Internal preprocessor error: protection exception in *module name*.**

### Explanation

This message indicates that there is an error in the preprocessor. Report the problem to IBM.

**IBM3997I S**      **Internal preprocessor error: no WHEN clause satisfied within *module name*.**

### Explanation

This message indicates that there is an error in the preprocessor. Report the problem to IBM.

**IBM3998I S**      *note*

### Explanation

This message is used to report DB2 or CICS backend messages with a return code of 16.

**IBM3999I U**      *note*

### Explanation

This message is used by %NOTE statements with a return code of 16.





---

## Chapter 6. Code Generation Messages (5000-5999)

---

### IBM5001      INTERNAL COMPILER ERROR: *text*

#### Explanation

An internal compiler error occurred during compilation.

Contact your Service Representative.

#### Explanation

The compiler detected an error while writing to the specified file.

Ensure that the correct file is specified. If the file is located on a LAN drive, ensure the LAN is working properly.

---

### IBM5002      Virtual storage exceeded.

#### Explanation

The compiler ran out of memory trying to compile the file. This sometimes happens with large files or programs with large functions. Note that very large programs limit the amount of optimization that can be done.

Shut down any large processes that are running, ensure your swap path is large enough, turn off optimization, and redefine your virtual storage to a larger size. You can also divide the file into several small sections or shorten the function.

---

### IBM5034      Read-only pointer initialization of dynamically allocated object *name* is not valid.

#### Explanation

The value of a read-only pointer must be known at compile time; a pointer cannot be read-only and point to a dynamically allocated object at the same time because the address of the pointee is known at run time only.

Modify the code so that the pointer is initialized with a read-only value or make the pointer read-write.

---

### IBM5003      *text*

#### Explanation

General error message.

---

### IBM5051      Function *function-name* exceeds size limit.

#### Explanation

The ACU for the function exceeds the LIMIT specified in the INLINE suboption.

Increase LIMIT if feasible to do so.

---

### IBM5031      Unable to open file *filename*.

#### Explanation

The compiler could not open the specified file.

Ensure the file name is correct. Ensure that the correct file is specified. If the file is located on a LAN drive, ensure the LAN is working properly. Also, the file may be locked by another process or access may be denied because of insufficient permission.

---

### IBM5052      Function *function-name* is (or grows) too large to be inlined.

#### Explanation

A function is too large to be inlined into another function.

---

### IBM5032      An error occurred while reading file *filename*.

#### Explanation

The compiler detected an error while reading from the specified file.

Ensure that the correct file is being read and has not been damaged. If the file is located on a LAN drive, ensure the LAN is working properly.

---

### IBM5053      Some calls to function *function-name* cannot be inlined.

#### Explanation

At least one call is either directly recursive, or the wrong number of parameters were specified.

Check all calls to the function specified and make that number of parameters match the function definition.

---

### IBM5033      An error occurred while writing to file *filename*.

---

### IBM5054      Automatic storage for function *function-name* increased to over *value*.

## Explanation

The size of automatic storage for function increased by at least 4 KB due to inlining.

Avoid inlining of functions which have large automatic storage.

---

<b>IBM5055</b>	<b>Parameter area overflow while compiling <i>function-name</i>. Parameter area size exceeds the allowable limit of <i>value</i>.</b>
----------------	---

---

## Explanation

The parameter area for a function resides in the first 4K of automatic storage for that function. This message indicates that the parameter area cannot fit into 4K.

Reduce the size of the parameter area by passing fewer parameters or by passing the address of a large structure rather than the structure itself.

---

<b>IBM5057</b>	<b><i>name</i> section size cannot exceed 16777215 bytes. Total section size is <i>value</i> bytes.</b>
----------------	---

---

## Explanation

A Data or Code section cannot exceed 16M in size.

Partition input source files into multiple source files which can be compiled separately.

---

<b>IBM5101</b>	<b>Maximum spill size of <i>value</i> is exceeded in function <i>function-name</i>.</b>
----------------	---

---

## Explanation

Spill size is the size of the spill area. Spill area is the storage allocated if the number of machine registers is not sufficient for program translation.

Reduce the complexity of the program and recompile.

---

<b>IBM5102</b>	<b>Spill size for function <i>function-name</i> is not sufficient. Recompile specifying option SPILL(<i>n</i>) where <i>lower-limit</i> &lt; <i>n</i> &lt;= <i>upper-limit</i>.</b>
----------------	---

---

## Explanation

Spill size is the size of the spill area. Spill area is the storage allocated if the number of machine registers is not sufficient for program translation.

Recompile using the SPILL(*n*) option *lower-limit* < *n* <= *upper-limit* or with a different OPT level.

---

<b>IBM5103</b>	<b>Internal error while compiling function <i>function-name</i> text.</b>
----------------	---

---

## Explanation

An internal compiler error occurred during compilation.

Contact your Service Representative or compile with a different OPT level.

---

<b>IBM5104</b>	<b>Internal error while compiling function <i>function-name</i> text. Compilation terminated.</b>
----------------	---

---

## Explanation

An internal compiler error of high severity has occurred.

Contact your Service Representative. Be prepared to quote the text of this message.

---

<b>IBM5105</b>	<b>Constant table overflow compiling function <i>function-name</i>. Compilation terminated.</b>
----------------	---

---

## Explanation

The constant table is the table that stores all the integer and floating point constants.

Reduce the number of constants in the program and recompile.

---

<b>IBM5106</b>	<b>Instruction in function <i>function-name</i> on line <i>value</i> is too complex. Compilation terminated.</b>
----------------	--

---

## Explanation

The specified instruction is too complex to be optimized.

Reduce the complexity of the instruction and recompile, or recompile with a different OPT level.

---

<b>IBM5107</b>	<b>Program too complex in function <i>function-name</i>.</b>
----------------	--

---

## Explanation

The specified function is too complex to be optimized.

Reduce the complexity of the program and recompile, or recompile with a different OPT level.

---

<b>IBM5108</b>	<b>Expression too complex in function <i>function-name</i>. Some optimizations not performed.</b>
----------------	---

---

## Explanation

The specified expression is too complex to be optimized.

Reduce the complexity of the expression or compile with a different OPT level.

---

<b>IBM5109</b>	<b>Infinite loop detected in function <i>function-name</i>. Program may not stop.</b>
----------------	---

---

### Explanation

A loop which may be infinite has been detected in the given function, and your code may need to be changed. However, sometimes the compiler will issue this message when your code is OK. For example, if the loop is exited via a GOTO out of an ON-unit, the compiler may issue this message although you would not need to change your code.

Recode the loop so that it will end.

---

<b>IBM5110</b>	<b>Loop too complex in function <i>function-name</i>. Some optimizations not performed.</b>
----------------	---

---

### Explanation

The specified loop is too complex to be optimized.

No action is required.

---

<b>IBM5111</b>	<b>Division by zero detected in function <i>function-name</i>. Runtime exception may occur.</b>
----------------	---

---

### Explanation

A division by zero has been detected in the given function.

Recode the expression to eliminate the divide by zero.

---

<b>IBM5112</b>	<b>Exponent is non-positive with zero as base in function <i>function-name</i>. Runtime exception may occur.</b>
----------------	--

---

### Explanation

This is a possible floating-point divide by zero.

Recode the expression to eliminate the divide by zero.

---

<b>IBM5113</b>	<b>Unsigned division by zero detected in function <i>function-name</i>. Runtime exception may occur.</b>
----------------	--

---

### Explanation

A division by zero has been detected in the given function.

Recode the expression to eliminate the divide by zero.

---

<b>IBM5114</b>	<b>Internal error while compiling function <i>function-name text</i>.</b>
----------------	---

---

### Explanation

An internal compiler error of low severity has occurred.

Contact your Service Representative or compile with a different OPT level.

---

<b>IBM5115</b>	<b>Control flow too complex in function <i>function-name</i> ; number of basic blocks or edges exceeds <i>value</i>.</b>
----------------	--

---

### Explanation

Basic blocks are segments of executable code without control flow. Edges are the possible paths of control flow between basic blocks.

Reduce the complexity of the program and recompile.

---

<b>IBM5116</b>	<b>Too many expressions in function <i>function-name</i> ; number of symbolic registers exceeds <i>value</i>.</b>
----------------	---

---

### Explanation

Symbolic registers are the internal representation of the results of computations.

Reduce the complexity of the program and recompile.

---

<b>IBM5117</b>	<b>Too many expressions in function <i>function-name</i>; number of computation table entries exceeds <i>value</i>.</b>
----------------	---

---

### Explanation

The computation table contains all instructions generated in the translation of a program.

Reduce the complexity of the program and recompile.

---

<b>IBM5118</b>	<b>Too many instructions in function <i>function-name</i>; number of procedure list entries exceeds <i>value</i>.</b>
----------------	---

---

### Explanation

The procedure list is the list of all instructions generated by the translation of each subprogram.

Reduce the complexity of the program and recompile.

---

<b>IBM5119</b>	<b>Number of labels in function <i>function-name</i> exceeds <i>value</i>.</b>
----------------	--

---

## Explanation

Labels are used whenever the execution path of the program could change; for example: if statements, switch statements, loops or conditional expressions.

Reduce the complexity of the program and recompile.

---

<b>IBM5120</b>	<b>Too many symbols in function <i>function-name</i> ; number of dictionary entries exceeds <i>value</i>.</b>
----------------	---

---

## Explanation

Dictionary entries are used for variables, aggregate members, string literals, pointer dereferences, function names and internal compiler symbols.

Compile the program at a lower level of optimization or simplify the program by reducing the number of variables or expressions.

---

<b>IBM5121</b>	<b>Program is too complex in function <i>function-name</i>. Specify MAXMEM option value greater than <i>value</i>.</b>
----------------	--

---

## Explanation

Some optimizations not performed.

Recompile specifying option MAXMEM with the suggested value for additional optimization.

---

<b>IBM5122</b>	<b>Parameter area overflow while compiling <i>name</i>. Parameter area size exceeds <i>value</i>.</b>
----------------	---

---

## Explanation

The parameter area is used to pass parameters when calling functions. Its size depends on the number of reference parameters, the number and size of value parameters, and on the linkage used.

Reduce the size of the parameter area by passing fewer parameters or by passing the address of a large structure rather than the structure itself.

---

<b>IBM5123</b>	<b>Spill size for function <i>function-name</i> is exceeded. Recompile specifying option SPILL(<i>n</i>) where <i>lower-limit</i> &lt; <i>n</i> &lt;= <i>upper-limit</i> for faster spill code.</b>
----------------	---

---

## Explanation

Spill size is the reserved size of the primary spill area. Spill area is the storage allocated if the number of machine registers is not sufficient for program translation.

Recompile using the SPILL(*n*) option with *lower-limit* < *n* <= *upper-limit* for improved spill code generation.

---

<b>IBM5130</b>	<b>An error occurred while opening file <i>filename</i>.</b>
----------------	--

---

## Explanation

The compiler could not open the specified file.

Ensure the file name is correct. Ensure that the correct file is being opened and has not been damaged. If the file is located on a LAN drive, ensure the LAN is working properly. Also, the file may be locked by another process or access may be denied because of insufficient permission.

---

<b>IBM5131</b>	<b>An error occurred while writing file <i>filename</i>.</b>
----------------	--

---

## Explanation

The compiler could not read from the specified file.

Ensure the file name is correct. Ensure that the correct file is being written to and has not been damaged. If the file is located on a LAN drive, ensure the LAN is working properly. Also, the file may be locked by another process or access may be denied because of insufficient permission.

---

<b>IBM5132</b>	<b>An error occurred while closing file <i>filename</i>.</b>
----------------	--

---

## Explanation

The compiler could not write to the specified file.

Ensure the file name is correct. Ensure that the correct file is being closed and has not been damaged. If the file is located on a LAN drive, ensure the LAN is working properly. Also, the file may be locked by another process or access may be denied because of insufficient permission.

---

<b>IBM5141</b>	<b>Automatic area for <i>function-name</i> is too large</b>
----------------	---

---

## Explanation

Automatic data resides in the stack; the stack size is limited by the target machine addressability.

Avoid large structures and large arrays as local variables; try using dynamically allocated data. Alternatively, try to break down the procedure into several smaller procedures.

---

## Chapter 7. Condition codes

Condition codes listed in this section reflect an aggregate of condition codes generated by all implementations. Some might not be generated for a particular platform.

A summary of all condition codes are listed in numerical sequence as follows.

---

### Condition codes 1 through 500

---

- 3**  
This condition is raised if, in a `SELECT` group, no *WHEN* clause is selected and no *OTHERWISE* clause is present.
- 4**  
SIGNAL FINISH, or STOP statement executed.
- 9**  
SIGNAL ERROR statement executed.
- 10**  
SIGNAL NAME statement executed.
- 20**  
SIGNAL RECORD statement executed.
- 21**  
Record variable smaller than record size. Either:
- The record is larger than the variable in a `READ INTO` statement; the remainder of the record is lost.
  - The record length specified for a file with fixed-length records is larger than the variable in a `WRITE`, `REWRITE`, or `LOCATE` statement; the remainder of the record is undefined. If the variable is a varying-length string, RECORD is not raised if the SCALARVARYING option is applied to the file.
- 22**  
Record variable larger than record size. Either:
- The record length specified for a file with fixed-length records is smaller than the variable in a `READ INTO` statement; the remainder of the variable is undefined. If the variable is a varying-length string, RECORD is not raised if the SCALARVARYING option is applied to the file.
  - The maximum record length is smaller than the variable in a `WRITE`, `REWRITE`, or `LOCATE` statement. For `WRITE` or `REWRITE`, the remainder of the variable is lost; for `LOCATE`, the variable is not transmitted.
  - The variable in a `WRITE` or `REWRITE` statement indicates a zero length; no transmission occurs. If the variable is a varying-length string, RECORD is not raised if the SCALARVARYING option is applied to the file.
- 23**  
Record variable length is either zero or too short to contain the embedded key.  
  
The variable in a `WRITE` or `REWRITE` statement is too short to contain the data set embedded key; no transmission occurs. (This case currently applies only to indexed key-sequenced data sets.)
- 24**  
Zero length record was read from a REGIONAL data set.
- 40**  
SIGNAL TRANSMIT statement executed.
- 41**  
Uncorrectable transmission error in output data set.

- 42** Uncorrectable transmission error in input data set.
- 43** Uncorrectable transmission error on output to index set.
- 44** Uncorrectable transmission error on input from index set.
- 45** Uncorrectable transmission error on output to indexed consecutive data set.
- 46** Uncorrectable transmission error on input from consecutive data set.
- 50** SIGNAL KEY statement executed.
- 51** Key specified cannot be found.
- 52** Attempt to add keyed record that has same key as a record already present in data set; or, in a REGIONAL(1) data set, attempt to write into a region already containing a record.
- 53** Value of expression specified in KEYFROM option during sequential creation of INDEXED or REGIONAL data set is less than value of previously specified key or region number.
- 54** Key conversion error, possibly due to region number not being numeric character.
- 55** Key specification is null string or begins with (8)'1'B or a change of embedded key has occurred on a sequential REWRITE[FROM] for an INDEXED or key-sequenced data set.
- 56** Attempt to access a record using a key that is outside the data set limits.
- 57** No space available to add a keyed record on INDEXED insert.
- 58** Key of record to be added lies outside the range(s) specified for the data set.
- 70** SIGNAL ENDFILE statement executed.
- 80** SIGNAL UNDEFINEDFILE statement executed.
- 81** Conflict in file attributes exists at open time between attributes in DECLARE statement and those in explicit or implicit OPEN statement.
- 82** Conflict between file attributes and physical organization of data set (for example, between file organization and device type), or indexed data set has not been loaded.
- 83** After merging ENVIRONMENT options with DD statement and data set label, data set specification is incomplete; for example, block size or record format has not been specified.
- 84** No DD statement associating file with a data set.
- 85** During initialization of a DIRECT OUTPUT file associated with a REGIONAL data set, an input/output error occurred.

- 86** LINESIZE greater than implementation-defined maximum, or invalid value in an ENVIRONMENT option.
- 87** After merging ENVIRONMENT options with DD statement and data set label, conflicts exist in data set specification; the value of LRECL, BLKSIZE or RECSIZE are incompatible with one another or the DCB FUNCTION specified.
- 88** After merging ENVIRONMENT options with DD statement and data set label, conflicts exist in data set specification; the resulting combination of MODE/FUNCTION and record format are invalid.
- 89** Password invalid or not specified.
- 90** SIGNAL ENDPAGE statement executed.
- 91** ENVIRONMENT option invalid for file accessing indexed data set.
- 92** The requested data set was not available.
- 93** Error detected by the operating system while opening a data set.

<b><u>Subcode1</u></b>	<b><u>Meaning</u></b>
<b>50</b>	A nonexistent ISAM file is being opened for input.
<b>51</b>	An unexpected error occurred when opening an ISAM file. Subcode2 gives the return code from ISAM.
<b>52, 53</b>	An unexpected error occurred when opening a native or REGIONAL(1) file.
<b>54</b>	A nonexistent BTRIEVE file is being opened for input.
<b>55</b>	An unexpected error occurred when opening a BTRIEVE file. Subcode2 gives the return code from BTRIEVE.
<b>56</b>	An unexpected error occurred when opening a DDM file.
<b>57, 58</b>	An unexpected error occurred when opening a DDM sequential, DDM relative or DDM indexed file. Subcode2 gives the return code from DDM.
<b>59</b>	An attempt was made to open a file that was already open.
<b>60</b>	A file of invalid type is being opened. An example of this is opening a VSAM file under z/OS UNIX System Services. VSAM files are not supported under z/OS UNIX System Services.
<b>66</b>	Open of a VSAM file failed. Subcode2 gives the feedback code.
<b>76</b>	A retry attempt at opening an SFS file failed.
<b>79</b>	An SFS file opened for input or update could not be found.
<b>119</b>	An unexpected error occurred during dynamic allocation processing for the file.
<b>120</b>	A parsing error occurred during dynamic allocation processing for the file.
<b>121</b>	An unexpected function was detected during dynamic allocation processing for the file.
<b>122</b>	An unsupported file mode was detected during dynamic allocation processing for the file.

<b><u>Subcode1</u></b>	<b><u>Meaning</u></b>
------------------------	-----------------------

<b>123</b>	The DDNAME could not be located during dynamic allocation processing for the file.
------------	--

- |           |   |
|-----------|---|
| <b>94</b> | REUSE specified for a nonreusable data set.               |
| <b>95</b> | Alternate index specified for an index data set is empty. |
| <b>96</b> | Incorrect environment variable.                           |
| <b>97</b> | VSAM server not available to perform the OPEN.            |
| <b>98</b> | Attempt to position the file at the first record failed.  |
| <b>99</b> | File cannot be opened.                                    |

<b><u>Subcode1</u></b>	<b><u>Meaning</u></b>
------------------------	-----------------------

- |                |  |
|----------------|--|
| <b>1 or 2</b>  | The extended attributes (EAs) for an existing REGIONAL(1) file could not be located and no RECCOUNT or RECSIZE values were given via the ENVIRONMENT or SET DD option.   |
| <b>3</b>       | A positioning error occurred for a sequential output file.   |
| <b>4</b>       | TYPE (FIXED) was specified for a native file, but the file size was not a multiple of RECSIZE.   |
| <b>5 or 13</b> | A positioning error occurred for a REGIONAL(1) file.   |
| <b>6 - 12</b>  | A positioning error occurred for an output file.   |
| <b>21 - 23</b> | AMTHD(DDM) was specified on the SET DD statement for a file, but the DDM DDLs (DUBRUN and DUBLDM) could not be found or accessed.  |
| <b>24</b>      | Incorrect extended attribute on a DDM file.  |
| <b>25</b>      | The ORGANIZATION option of the ENVIRONMENT attribute conflicts with the type of data set (DDM or native).  |
| <b>26</b>      | Conflicts exist with how the file is being used.   |
| <b>27</b>      | A composite key was detected with a keyed-opening.   |
| <b>28 - 30</b> | A new DDM file could not be created.   |
| <b>31</b>      | A positioning error occurred for a DDM file.   |
| <b>35</b>      | AMTHD(BTRIEVE) was specified on the DD environment variable but the BTRIEVE loadable component (BTRCALLS) could not be found or could not be accessed on the system.   |
| <b>36</b>      | Unexpected error occurred when opening a BTRIEVE file.   |
| <b>37</b>      | A new BTRIEVE file could not be created.   |
| <b>38</b>      | A positioning error occurred for a BTRIEVE file.   |
| <b>40</b>      | AMTHD(ISAM) was specified on the DD environment variable but the ISAM non-multithreading loadable components (IBMWS20F and IBMWS20G) or the ISAM multithreading loadable components (IBMWM20F and IBMWM20G) could not be found or could not be accessed on the system. |
| <b>41</b>      | Unexpected error occurred when opening an ISAM file.   |



<b><u>Subcode1</u></b>	<b><u>Meaning</u></b>
<b>42</b>	A new ISAM file could not be created.
<b>43</b>	A positioning error occurred for an ISAM file.
<b>60</b>	A file of invalid type is being opened. An example of this is opening a VSAM file under z/OS UNIX System Services. VSAM files are not supported under z/OS UNIX System Services.
<b>62</b>	Query for file information failed for a VSAM file under MVS batch.
<b>63</b>	A non-VSAM file is being opened as a VSAM file under MVS batch.
<b>64</b>	A VSAM file is being opened with an invalid type (that is, the file is not a KSDS, ESDS or RRDS file).
<b>65</b>	A VSAM file is being opened in a non-MVS batch environment. VSAM files are supported only under MVS batch.
<b>66</b>	Open of a VSAM file failed. Subcode 2 gives the feedback code.
<b>67</b>	A VSAM file is being opened as a non-VSAM file under MVS batch.
<b>68</b>	An invalid VSAM file is being opened.
<b>69</b>	Query for file information failed for a native file under MVS batch.
<b>70</b>	Positioning for a VSAM file failed.
<b>71</b>	A VSAM file is being opened under a non-MVS batch environment.
<b>72</b>	An invalid PL/I file is being opened.
<b>73</b>	The SFS library cannot be loaded.
<b>74</b>	The DCE library cannot be loaded.
<b>75</b>	A new SFS file could not be created.
<b>77</b>	Positioning for an SFS file failed.
<b>78</b>	Not enough storage below the line.
<b>80</b>	There was an error processing an empty VSAM file opened for update. Oncode 82 should have been issued.

#### **110**

The specified data set or path name could not be found during dynamic allocation processing for the file.

#### **111**

An invalid keyword was encountered in the environment variable string during dynamic allocation processing for the file.

#### **112**

Conflicting keywords were detected during dynamic allocation processing for the file.

#### **113**

A bad delimiter was detected during dynamic allocation processing for the file.

#### **115**

The DSN parameter of the environment variable specified a temporary data set name, which is not supported for dynamic allocation.

#### **116**

The PATH parameter of the environment variable did not specify an absolute path name.

#### **117**

The data set name specified in the DSN keyword of the environment variable was invalid.

- 118**  
The member name specified in the DSN keyword of the environment variable was invalid.
- 119**  
The path name specified in the PATH keyword of the environment variable was invalid.
- 120**  
An error occurred during the dynamic allocation phase for the file associated with the ddname.
- 121**  
An error occurred while attempting to dynamically deallocate the file associated with the ddname.
- 150**  
SIGNAL STRINGSIZE statement executed or STRINGSIZE condition occurred.
- 151**  
Truncation occurred during assignment of a mixed character string.
- 290**  
SIGNAL INVALIDOP statement was executed or INVALIDOP exception occurred.
- 300**  
SIGNAL OVERFLOW statement executed or OVERFLOW condition occurred.
- 310**  
SIGNAL FIXEDOVERFLOW statement executed or FIXEDOVERFLOW condition occurred.
- 320**  
SIGNAL ZERODIVIDE statement executed or ZERODIVIDE condition occurred.
- 330**  
SIGNAL UNDERFLOW statement executed or UNDERFLOW condition occurred.
- 340**  
SIGNAL SIZE statement executed; or high-order nonzero digits have been lost in an assignment to a variable or temporary, or significant digits have been lost in an input/output operation.
- 341**  
High order nonzero digits have been lost in an input/output operation.
- 342**  
The attempt to assign the specified value to the target would cause significant digits to be lost.
- 343**  
The source in an assignment to an UNSIGNED FIXED BIN should be greater than or equal to zero.
- 350**  
SIGNAL STRINGRANGE statement executed or STRINGRANGE condition occurred.
- 360**  
Attempt to allocate a based variable within an area that contains insufficient free storage for allocation to be made.
- 361**  
Insufficient space in target area for assignment of source area.
- 362**  
SIGNAL AREA statement executed.
- 400**  
SIGNAL ATTENTION statement executed.
- 430**  
SIGNAL ASSERTION.
- 431**  
An ASSERT TRUE/FALSE statement without a TEXT clause failed.
- 432**  
An ASSERT TRUE/FALSE statement with a TEXT clause failed.
- 433**  
An ASSERT UNREACHABLE statement without a TEXT clause failed.

**434**

An ASSERT UNREACHABLE statement with a TEXT clause failed.

**435**

An ASSERT COMPARE statement without a TEXT clause failed.

**436**

An ASSERT COMPARE statement with a TEXT clause failed.

**450**

SIGNAL STORAGE statement executed.

**451**

ALLOCATE statement or ALLOCATE built-in function failed; insufficient storage to satisfy request.

**500**

SIGNAL CONDITION (name) statement executed.

## Condition codes 501 through 1000

---

**520**

SIGNAL SUBSCRIPTRANGE statement executed, or subscript has been evaluated and found to lie outside its specified bounds.

**521**

Subscript value was outside the bounds for an array.

**522**

The JSON source contains more elements for the array than allowed by its bounds.

**523**

The JSON source contains more elements for the array dimension specified than allowed by the bounds for that dimension.

**550**

Signal CONFORMANCE statement executed.

**551**

The offset of the last element that the callee expects for the indicated parameter does not match the offset passed by the caller.

**552**

The size that the callee expects for the indicated parameter does not match the size passed by the caller.

**553**

The lbound that the callee expects for the indicated parameter does not match the lbound passed by the caller.

**554**

The hbound that the callee expects for the indicated parameter does not match the hbound passed by the caller.

**555**

The MAXLENGTH value that the callee expects for the indicated parameter does not match the MAXLENGTH value passed by the caller.

**556**

The string type that the callee expects for the indicated parameter does not match the type passed by the caller.

**557**

The value that the callee expects for the RETURNS parameter does not match the value passed by the caller.

**558**

The string type that the callee expects for the RETURNS parameter does not match the type passed by the caller.

**559**

The specified hex value is not valid for the ORDINAL type.

**560**

There was no element in the target structure that matches the JSON source name. The JSONNAME built-in function will give the value of the JSON source name that could not be found.

**561**

There was no element in the target structure that matches the JSON source name. The JSONNAME built-in function will not be valid in this case because the JSON source name has a UTF-8 length that is too long for its display to be useful.

**562**

There was no element in the target structure that matches the JSON source name. The JSONNAME built-in function will not be valid in this case because the JSON source name contains a UTF-8 character that cannot be translated to the compiled codepage of the target structure.

**600**

SIGNAL CONVERSION statement executed.

**601**

Invalid conversion attempted during input/output of a character string.

**603**

Error during processing of an F-format item for a GET STRING statement.

**604**

Error during processing of an F-format item for a GET FILE statement.

**605**

Error during processing of an F-format item for a GET FILE statement following a TRANSMIT condition.

**606**

Error during processing of an E-format item for a GET STRING statement.

**607**

Error during processing of an E-format item for a GET FILE statement.

**608**

Error during processing of an E-format item for a GET FILE statement following a TRANSMIT condition.

**609**

Error during processing of a B-format item for a GET STRING statement.

**610**

Error during processing of a B-format item for a GET FILE statement.

**611**

Error during processing of a B-format item for a GET FILE statement following TRANSMIT condition.

**612**

Error during character value to arithmetic conversion.

**613**

Error during character value to arithmetic conversion for a GET or PUT FILE statement.

**614**

Error during character value to arithmetic conversion for a GET or PUT FILE statement following a TRANSMIT condition.

**615**

Error during character value to bit value conversion.

**616**

Error during character value to bit value conversion for a GET or PUT FILE statement.

**617**

Error during character value to bit value conversion for a GET or PUT FILE statement following a TRANSMIT condition.

- 618**  
Error during character value to picture conversion.
- 619**  
Error during character value to picture conversion for a GET or PUT FILE statement.
- 620**  
Error during character value to picture conversion for a GET or PUT FILE statement following a TRANSMIT condition.
- 621**  
Error in decimal P-format item for a GET STRING statement.
- 622**  
Error in decimal P-format input for a GET FILE statement.
- 623**  
Error in decimal P-format input for a GET FILE statement following a TRANSMIT condition.
- 624**  
Error in character P-format input for a GET FILE statement.
- 625**  
Error exists in character P-format input for a GET FILE statement.
- 626**  
Error exists in character P-format input for a GET FILE statement following a TRANSMIT condition.
- 627**  
A graphic or mixed character string encountered in a nongraphic environment.
- 628**  
A graphic or mixed character string encountered in a nongraphic environment on input.
- 629**  
A graphic or mixed character string encountered in a nongraphic environment on input after TRANSMIT was detected.
- 633**  
An invalid character detected in a *X*, *BX*, or *GX* string constant.
- 634**  
An invalid character detected in a *X*, *BX*, or *GX* string constant on input.
- 635**  
An invalid character detected in a *X*, *BX*, or *GX* string constant on input after *TRANSMIT* was detected.
- 640**  
Conversion from picture contained an invalid character.
- 641**  
Conversion from picture contained an invalid character on input or output.
- 642**  
Conversion from picture contained an invalid character on input after TRANSMIT was detected.
- 643**  
Error during processing of a graphic F-format item for a GET STRING statement.
- 644**  
Error during processing of a graphic F-format item for a GET FILE statement.
- 645**  
Error during processing of a graphic F-format item for a GET FILE statement following a TRANSMIT condition.
- 646**  
Error during processing of a graphic E-format item for a GET STRING statement.
- 647**  
Error during processing of a graphic E-format item for a GET FILE statement.

- 648**  
Error during processing of a graphic E-format item for a GET FILE statement following a TRANSMIT condition.
- 649**  
Error during processing of a graphic B-format item for a GET STRING statement.
- 650**  
Error during processing of a graphic B-format item for a GET FILE statement.
- 651**  
Error during processing of a graphic B-format item for a GET FILE statement following TRANSMIT condition.
- 652**  
Error during graphic character value to arithmetic conversion.
- 653**  
Error during graphic character value to arithmetic conversion for a GET or PUT FILE statement.
- 654**  
Error during graphic character value to arithmetic conversion for a GET or PUT FILE statement following a TRANSMIT condition.
- 655**  
Error during graphic character value to bit value conversion.
- 656**  
Error during graphic character value to bit value conversion for a GET or PUT FILE statement.
- 657**  
Error during graphic character value to bit value conversion for a GET or PUT FILE statement following a TRANSMIT condition.
- 658**  
Error during graphic character value to picture conversion.
- 659**  
Error during graphic character value to picture conversion for a GET or PUT FILE statement.
- 660**  
Error during graphic character value to picture conversion for a GET or PUT FILE statement following a TRANSMIT condition.
- 661**  
Error in decimal graphic P-format item for a GET STRING statement.
- 662**  
Error in decimal graphic P-format input for a GET FILE statement.
- 663**  
Error in decimal graphic P-format input for a GET FILE statement following a TRANSMIT condition.
- 664**  
Error in character graphic P-format input for a GET FILE statement.
- 665**  
Error exists in character graphic P-format input for a GET FILE statement.
- 666**  
Error exists in character graphic P-format input for a GET FILE statement following a TRANSMIT condition.
- 667**  
No SBCS equivalent in the GRAPHIC conversion to character.
- 668**  
No SBCS equivalent in the GRAPHIC conversion to character on input.

- 669**  
No SBCS equivalent in the GRAPHIC conversion to character on input following a TRANSMIT condition.
- 670**  
Unknown source attributes.
- 671**  
Unknown source attributes on input.
- 672**  
Unknown source attributes on input following a TRANSMIT condition.
- 673**  
Error during WIDECHAR value to character conversion.
- 674**  
Error during WIDECHAR value to character conversion for a GET or PUT FILE statement.
- 675**  
Error during WIDECHAR value to character conversion for a GET or PUT FILE statement following a TRANSMIT condition.
- 676**  
Error during WIDECHAR value to arithmetic conversion.
- 677**  
Error during WIDECHAR value to arithmetic conversion for a GET or PUT FILE statement.
- 678**  
Error during WIDECHAR value to arithmetic conversion for a GET or PUT FILE statement following a TRANSMIT condition.
- 679**  
Error during WIDECHAR value to bit value conversion.
- 680**  
Error during WIDECHAR value to bit value conversion for a GET or PUT FILE statement.
- 681**  
Error during WIDECHAR value to bit value conversion for a GET or PUT FILE statement following a TRANSMIT condition.
- 682**  
Error during WIDECHAR value to picture conversion.
- 683**  
Error during WIDECHAR value to picture conversion for a GET or PUT FILE statement.
- 684**  
Error during WIDECHAR value to picture conversion for a GET or PUT FILE statement following a TRANSMIT condition.

## Condition codes 1001 through 1499

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- 1001**  
EVENT variable already used with a DISPLAY statement.
- 1002**  
GET or PUT STRING specifies data exceeding size of string.
- 1003**  
Further output prevented by TRANSMIT or KEY conditions previously raised for the data set.
- 1004**  
Attempt to use PAGE, LINE, or SKIP  $\leq 0$  for nonprintable file.
- 1005**  
In a DISPLAY(expression) REPLY (character-reference) statement, expression or character-reference is zero length.

**1007**

A REWRITE or a DELETE statement not preceded by a READ.

**1008**

Unrecognized field preceding the assignment symbol in a string specified in a GET STRING DATA statement.

**1009**

An input/output statement specifies an operation or an option which conflicts with the file attributes.

**1010**

A built-in function or pseudovvariable referenced an unopened file.

**1011**

Data management detected an input/output error but is unable to provide any information about its cause.

**1013**

Previous input operation incomplete; REWRITE or DELETE statement specifies data which has been previously read in by a READ statement with an EVENT option, and no corresponding WAIT has been executed.

**1014**

Attempt to initiate further input/output operation when number of incomplete operations equals number specified by ENVIRONMENT option NCP(n) or by default.

**1015**

Event variable specified for an input/output operation when already in use.

**1016**

After UNDEFINEDFILE condition raised as a result of an unsuccessful attempt to implicitly open a file, the file was found unopened on normal return from the ON-unit.

**1018**

End of file or string encountered in data before end of data-list or in edit-directed transmission format list.

**1019**

Attempt to close file not opened in current process.

**1020**

Further input/output attempted before WAIT statement executed to ensure completion of previous READ.

**1021**

Attempt to access a record locked by another file in this process.

**1022**

Unable to extend indexed data set.

**1023**

Exclusive file closed while records still locked in a subtask

**1024**

Incorrect sequence of I/O operations on device-associated file.

**1025**

Insufficient virtual storage available to complete request.

**1026**

No position established in index data set.

**1027**

Record control interval already held in exclusive control.

**1028**

Requested record lies on an unmounted volume.

**1029**

Attempt to reposition in index data set failed.



- 1030**  
An error occurred during index upgrade on a index data set.
- 1031**  
Invalid sequential write attempted on index data set.
- 1040**  
A data set open for output used all available space.
- 1041**  
An attempt was made to write a record containing a record delimiter.
- 1042**  
Record in data set is not properly delimited.
- 1043**  
I/O error during CLOSE processing.
- 1062**  
Record length incorrect for RRDS file.
- 1068**  
VSAM server was not available.
- 1069**  
A deadlock was detected while attempting to lock a record.
- 1071**  
A retained lock reject has occurred while attempting to lock a record.
- 1094**  
Alternate index pointer invalid.
- 1102**  
An error occurred in storage management. Storage to be freed was pointed to by an invalid address.
- 1104**  
An internal error occurred in the library.
- 1105**  
Unable to create an object window.
- 1106**  
Insufficient space available to satisfy a storage allocation request.
- 1107**  
A problem occurred during free storage processing.
- 1301**  
F-factor in PICTURE specification was outside of the range of -128 to 127.
- 1302**  
PICTURE specification contained invalid character.
- 1303**  
F-factor contained invalid character.
- 1304**  
PICTURE specification contained invalid character.
- 1305**  
PICTURE specification contained invalid precision value.
- 1306**  
PICTURE specification contained too many overpunch characters.
- 1307**  
PICTURE specification contained precision value less than 1.
- 1308**  
Precision value in fixed decimal PICTURE specification exceeded limit.
- 1309**  
Precision value in float decimal PICTURE specification exceeded limit.

- 1310**  
PICTURE specification did not contain picture characters.
- 1311**  
Exponent in float PICTURE specification exceeded limit.
- 1312**  
Exponent in float PICTURE specification was missing.
- 1313**  
Exponent in PICTURE specification contained V character.
- 1314**  
Float PICTURE specification contained invalid character.
- 1315**  
PICTURE specification exceeded limit.
- 1316**  
PICTURE specification contained invalid delimiter.

## Condition codes 1500 through 2000

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- 1500**  
Computational error; short floating-point argument of SQRT built-in function is less than zero.
- 1501**  
Computational error; long floating-point argument of SQRT built-in function is less than zero.
- 1502**  
Computational error; extended floating-point argument of SQRT built-in function is less than zero.
- 1503**  
Computational error in LOG, LOG2, or LOG10 built-in function; extended floating-point argument is less than zero.
- 1504**  
Computational error in LOG, LOG2, or LOG10 built-in function; short floating-point argument is less than zero.
- 1505**  
Computational error in LOG, LOG2 or LOG10 built-in function; long floating-point argument is less than zero.
- 1506**  
Computational error in SIN, COS, SIND, or COSD built-in function; absolute value of short floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	$\pi \cdot (2^{**18})$
<b>z ieee decimal</b>	1s6

- 1507**  
Computational error in SIN, COS, SIND, or COSD built-in function; absolute value of long floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	$\pi \cdot (2^{**50})$
<b>z ieee binary</b>	3.53711d15
<b>z ieee decimal</b>	1d15
<b>i ieee binary</b>	$2^{**63}$

**1508**

Computational error; absolute value of short floating-point argument of TAN or TAND built-in function is too large The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{**18})$
z ieee decimal	1s6

**1509**

Computational error; absolute value of long floating-point argument of TAN or TAND built-in function is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{**50})$
z ieee binary	3.53711d15
z ieee decimal	1d15
i ieee binary	$2^{**63}$

**1514**

Computational error; absolute value of short floating-point argument of ATANH built-in function >1.

**1515**

Computational error; absolute value of long floating-point argument of ATANH built-in function >1.

**1516**

Computational error; absolute value of extended floating-point argument of ATANH built-in function >1.

**1517**

Computational error in SIN, COS, SIND, or COSD built-in function; argument of extended floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{**100})$
z ieee binary	4.07802q33
z ieee decimal	1q33
i ieee binary	$2^{**64}$

**1518**

Computational error; absolute value of short floating-point argument of ASIN or ACOS built-in function exceeds 1.

**1519**

Computational error; absolute value of long floating-point argument of ASIN or ACOS built-in function exceeds 1.

**1520**

Computational error; absolute value of extended floating-point argument of ASIN, ACOS built-in function exceeds 1.

**1522**

Computational error; absolute value of extended floating-point argument of TAN or TAND built-in function is too large The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{**100})$

<u>Representation</u>	<u>Limit</u>
<b>z ieee binary</b>	4.07802q33
<b>z ieee decimal</b>	1q33
<b>i ieee binary</b>	2**64

#### 1523

Computational error; absolute value of real short floating-point argument of SINH or COSH built-in function is too large The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	175.366
<b>z ieee decimal</b>	2.233507s02

#### 1524

Absolute value of real long floating-point argument of SINH or COSH argument is too large The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	175.366
<b>z ieee binary</b>	709.7827
<b>z ieee decimal</b>	8.864952608027075d02
<b>i ieee binary</b>	710.47

#### 1525

Absolute value of real extended floating-point argument of SINH or COSH is too large, The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	175.366
<b>z ieee binary</b>	11354
<b>z ieee decimal</b>	1.41493853964484107282905574890354q4
<b>i ieee binary</b>	11357.56

#### 1529

Computational error in SIN, COS, SIND, or COSD built-in function; absolute value of the real part of complex short floating-point argument greater is too large The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	$\pi \cdot (2^{**18})$
<b>z ieee decimal</b>	1s6

#### 1530

Computational error in SIN, COS, SIND, or COSD built-in function; absolute value of the real part of complex long floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	$\pi \cdot (2^{**50})$
<b>z ieee binary</b>	3.53711d15

<u>Representation</u>	<u>Limit</u>
<b>z ieee decimal</b>	1d15
<b>i ieee binary</b>	2**63

#### 1531

Computational error in SIN, COS, SIND, or COSD built-in function; absolute value of the real part of complex extended floating-point is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	$\pi \cdot (2^{100})$
<b>z ieee binary</b>	4.07802q33
<b>z ieee decimal</b>	1q33
<b>i ieee binary</b>	2**64

#### 1550

Computational error; during exponentiation, real short floating-point base is zero and integer exponent is not positive.

#### 1551

Computational error; during exponentiation, real long floating-point base is zero and integer exponent is not positive.

#### 1552

Computational error; during exponentiation, real short floating-point base is zero and the floating-point or noninteger exponent is not positive.

#### 1553

Computational error; during exponentiation, real long floating-point base is zero and the floating-point or noninteger exponent is not positive.

#### 1554

Computational error; during exponentiation, complex short floating-point base is zero and integer exponent is not positive.

#### 1555

Computational error; during exponentiation, complex long floating-point base is zero and integer exponent is not positive.

#### 1556

Computational error; during exponentiation, complex short floating-point base is zero and floating-point or noninteger exponent is not positive and real.

#### 1557

Computational error; during exponentiation, complex long floating-point base is zero and floating-point or noninteger exponent is not positive and real.

#### 1558

Computational error; complex short floating-point argument of ATAN or ATAND built-in function has value, respectively, of  $\pm 1I$  or  $\pm 1$ .

#### 1559

Computational error; complex long floating-point argument of ATAN or ATAND built-in function has value, respectively, of  $\pm 1I$  or  $\pm 1$ .

#### 1560

Computational error; during exponentiation, real extended floating-point base is zero and integer exponent not positive.

#### 1561

Computational error; during exponentiation, real extended floating-point base is zero and floating-point or noninteger exponent is not positive.

**1562**

Computational error; during exponentiation, complex extended floating-point base is zero and integer exponent is not positive.

**1563**

Computational error; complex extended floating-point base is zero and floating-point or nonintegral exponent is not positive.

**1564**

Computational error; complex extended floating-point argument of ATAN or ATAND built-in function has value, respectively, of  $\pm 1I$  or  $\pm 1$ .

**1568**

Computational error EXP built-in function; absolute value of the imaginary part of the complex short floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{18})$
z ieee decimal	1s6

**1569**

Computational error EXP built-in function; absolute value of the imaginary part of the complex long floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{50})$
z ieee binary	3.53711d15
z ieee decimal	1d15
i ieee binary	$2^{63}$

**1570**

Computational error EXP built-in function; absolute value of the imaginary part of the complex extended floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{100})$
z ieee binary	4.07802q33
z ieee decimal	1qd33
i ieee binary	$2^{64}$

**1571**

Computational error GAMMA or LOGGAMMA built-in function; real short floating point argument is too large. The limit for GAMMA depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	57.5744
z ieee decimal	6.932968s01

The limit for LOGGAMMA depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$4.2937 \cdot (10^{73})$
z ieee decimal	4.608910s94

**1572**

Computational error GAMMA or LOGGAMMA built-in function; real long floating point argument is too large. The limit for GAMMA depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	57.5744
z ieee binary	171.624
z ieee decimal	2.053796629328708d02
i ieee binary	171.6243

The limit for LOGGAMMA depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$4.2937 \cdot (10^{**73})$
z ieee binary	2.559d305
z ieee decimal	1.138023083333461d382
i ieee binary	$2.0d0^{**1014}$

**1573**

Computational error GAMMA or LOGGAMMA built-in function; real extended floating point argument is too large. The limit for GAMMA depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	57.5744
z ieee binary	1755
z ieee decimal	2.12454995666246323632807135355444q3
i ieee binary	171.6243

The limit for LOGGAMMA depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$4.2937 \cdot (10^{**73})$
z ieee binary	1q4928
z ieee decimal	7.07272165228093306168809969252963q6140
i ieee binary	$2.0q0^{**1014}$

**1574**

Computational error TANH built-in function; absolute value of the imaginary part of the complex short floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{**18})$
z ieee decimal	1s6

**1575**

Computational error TANH built-in function; absolute value of the imaginary part of the complex long floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{50})$
z ieee binary	3.53711d15
z ieee decimal	1d15
i ieee binary	$2^{63}$

#### 1576

Computational error TANH built-in function; absolute value of the imaginary part of the complex extended floating-point argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{100})$
z ieee binary	4.07802q33
z ieee decimal	1q33
i ieee binary	$2^{64}$

#### 1577

Computational error in LOG, LOG2, or LOG10 built-in function; real short floating-point argument equal to zero.

#### 1578

Computational error in LOG, LOG2, or LOG10 built-in function; real long floating-point argument equal to zero.

#### 1579

Computational error in LOG, LOG2, or LOG10 built-in function; real extended floating-point argument equal to zero.

#### 1611

Computational error; real short floating-point argument for EXP built-in function is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	174.673
z ieee decimal	2.233507s02

#### 1612

Computational error; real long floating-point argument for EXP built-in function is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	174.673
z ieee binary	709.7827
z ieee decimal	8.864952608027075d02
i ieee binary	710.47

#### 1613

Computational error; real extended floating-point argument for EXP built-in function is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	174.673



<u>Representation</u>	<u>Limit</u>
<b>z ieee binary</b>	11354
<b>z ieee decimal</b>	1.41493853964484107282905574890354q4
<b>i ieee binary</b>	11357.56

#### 1729

Computational error; during exponentiation, real short floating-point base is zero and real short floating-point exponent is not positive or zero.

#### 1730

Computational error; during exponentiation, real long floating-point base is zero and real long floating-point exponent is not positive or zero.

#### 1754

Computational error; during exponentiation for a complex short floating-point base with a complex short floating-point exponent, an argument exceeded the limit.

#### 1755

Computational error; during exponentiation for a complex long floating-point base with a complex long floating-point exponent, an argument exceeded the limit.

#### 1756

Computational error; during exponentiation for a complex extended floating-point base with a complex extended floating-point exponent, an argument exceeded the limit.

#### 1853

Computational error in TAN or TAND; for complex short floating-point argument, absolute value of the real part of argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	$\pi \cdot (2^{**18})$
<b>z ieee decimal</b>	1s6

#### 1854

Computational error in TAN or TAND; for complex long floating-point argument, absolute value of the real part of argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	$\pi \cdot (2^{**50})$
<b>z ieee binary</b>	3.53711d15
<b>z ieee decimal</b>	1d15
<b>i ieee binary</b>	$2^{**63}$

#### 1855

Computational error in TAN or TAND; for complex extended floating-point argument, absolute value of the real part of argument is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
<b>hexadecimal</b>	$\pi \cdot (2^{**100})$
<b>z ieee binary</b>	4.07802q33
<b>z ieee decimal</b>	1q33
<b>i ieee binary</b>	$2^{**64}$

**1914**

Computational error; absolute value of imaginary part of complex short floating-point argument of SINH or COSH built-in function is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{**18})$
z ieee decimal	1s6

**1915**

Computational error; absolute value of the imaginary part of complex long floating-point argument of SINH or COSH built-in is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{**50})$
z ieee binary	3.53711d15
z ieee decimal	1d15
i ieee binary	$2^{**63}$

**1916**

Computational error; absolute value of the imaginary part of complex extended floating-point argument of SINH or COSH built-in is too large. The limit depends on the representation as follows:

<u>Representation</u>	<u>Limit</u>
hexadecimal	$\pi \cdot (2^{**100})$
z ieee binary	4.07802q33
z ieee decimal	1q33
i ieee binary	$2^{**64}$

**1960**

Computational error in SQRT; real short floating-point argument is equal to zero.

**1961**

Computational error in SQRT; real long floating-point argument is equal to zero.

**1962**

Computational error in SQRT; real extended floating-point argument is equal to zero.

## Condition codes 2001 through 2500

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**2002**

WAIT statement cannot be executed because of restricted system facility.

**2050**

WAIT statement that causes permanent wait encountered.

**2101**

Greenwich mean time was not available for the RANDOM built-in function.

**2102**

An invalid seed value was detected in the RANDOM built-in function. The random number was set to -1.

**2103**

Local time was unavailable.

**2104**

The value of y in the SECSTODATE, DAYS, DAYSTODATE, or DATETIME built-in function contained an invalid picture string specification.

**2105**

The value of *x* in the DAYS built-in function contained an invalid day value; the valid range is 15 October 1582 to 31 December 9999.

**2106**

The value of *x* in the DAYS built-in function contained an invalid month value; the valid range is October 1582 to December 9999.

**2107**

The value of *x* in the DAYS built-in function contained an invalid year value; the valid range is 1582 to 9999.

**2108**

The value of *x* in the DAYSTODATE built-in function was outside the supported range; the valid range is from 1 to 3,074,324.

**2109**

The value of *x* in the SECSTODATE built-in function was outside the supported range; the valid range is from 86,400 to 265,621,679,999.999.

**2110**

The value of *x* in the DAYSTODATE built-in function could not be converted to a valid Japanese or Republic of China Era.

**2111**

The difference between the current local time and the Greenwich Mean Time was unavailable.

**2112**

The value of *x* in the SECS or DAYS built-in function was outside the supported range; the valid range is from 15 October 1582 to 31 December 9999.

**2113**

The value of *x* in the SECS built-in function contained an invalid seconds value; the valid range is from 0 to 59.

**2114**

The value of *x* in the SECS built-in function contained an invalid minutes value; the valid range is from 0 to 59.

**2115**

The value of *x* in the SECS built-in function contained an invalid hour value; the valid range is from 0 to 23 or from 0 to 12 (if the AP field is present).

**2116**

The value of *x* in the DAYS built-in function did not match the given picture specification.

**2117**

The value of *x* in the SECS built-in function did not match the given picture specification.

**2118**

The date string returned by the DAYSTODATE built-in function was truncated.

**2119**

The timestamp returned by the DATETIME or SECSTODATE built-in function was truncated.

**2120**

The value of *x* in the SECSTODATE or DATETIME built-in function contained an invalid value for the number of seconds with the range of supported Japanese or Republic of China Eras.

**2121**

Insufficient data was passed to the DAYS or SECS built-in function; the picture string did not contain enough information.

**2122**

The value of *x* in the SECS or DAYS built-in function contained an invalid Era name.

**2165**

Computational error GAMMA or LOGGAMMA built-in function; real short floating point argument is less than or equal to zero.

**2166**

Computational error GAMMA or LOGGAMMA built-in function; real long floating point argument is less than or equal to zero.

**2167**

Computational error GAMMA or LOGGAMMA built-in function; real extended floating point argument is less than or equal to zero.

**2171**

Real short floating-point argument greater than limit.

**2172**

Real long floating-point argument greater than limit.

**2173**

Real extended floating-point argument greater than limit.

**2403**

Computational error; real extended floating point argument of GAMMA or LOGGAMMA built-in function was less than or equal to zero.

**2404**

Computational error; real extended floating point argument of GAMMA or LOGGAMMA built-in function was equal to zero.

**2413**

Computational error; complex short floating-point argument in LOG, LOG2, or LOG10 built-in function was zero.

**2414**

Computational error; complex long floating-point argument in LOG, LOG2, or LOG10 built-in function was zero.

**2415**

Computational error; complex extended floating-point argument in LOG, LOG2, or LOG10 built-in function was zero.

**2504**

Real short floating-point argument greater than allowed value for data type.

**2505**

Real long floating-point argument greater than allowed value for data type.

**2506**

Real extended floating-point argument greater than allowed value for data type.

## Condition codes 3000 through 4000

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**3000**

Field width, number of fractional digits, and number of significant digits (w, d, and s) specified for E-format item in edit-directed input/output statement do not allow transmission without loss of significant digits or sign.

**3002**

MEMCONVERT built-in returned a bad return code.

**3003**

No room for shift-in after Unicode conversion.

**3006**

Picture description of target does not match non-character-string source.

**3009**

A mixed-character string contained a shift-out, then ended before a shift-in was found.

**3010**

During processing of a mixed-character constant, one of the following occurred:

- A shift-in present in the SBCS portion.

- A shift-out present in the graphic (double-byte) portion. (A shift-out cannot appear in either byte of a graphic character).
- A shift-in present in the second byte of a graphic character.

**3011**

MPSTR built-in function contains an invalid character (or a null function string, or only blanks) in the expression that specifies processing rules. (Only V, v, S, s, and blank are valid characters.)

**3013**

An assignment attempted to a graphic target with a length greater than 16,383 characters (32,766 bytes).

**3014**

A graphic or mixed string did not conform to the continuation rules.

**3015**

A X or GX constant has an invalid number of digits.

**3016**

Improper use of graphic data in stream I/O. Graphic data can only be used as part of a variable name or string.

**3018**

Invalid UTF-8 data was detected.

**3019**

An invalid byte 2 in a UTF-8 character was detected.

**3020**

An invalid byte 3 in a UTF-8 character was detected.

**3021**

An invalid byte 4 in a UTF-8 character was detected.

**3022**

An incomplete UTF-8 character was detected.

**3023**

Invalid UTF-16 data was detected.

**3024**

An incomplete UTF-16 character was detected.

**3025**

USUBSTR reference is invalid.

**3500**

Error detected by the operating system while processing WAIT statement.

**3501**

Error detected by the operating system while processing DETACH statement.

**3502**

Error detected by the operating system while processing ATTACH statement.

**3503**

Error detected by the operating system while processing STOP statement.

**3504**

ATTACH statement being processed in POSIX(OFF) environment.

**3797**

Attempt to convert to or from graphic data.

**3798**

ONCHAR, ONSOURCE, or ONGSOURCE pseudovvariable used out of context.

**3799**

The source was not modified in the CONVERSION ON-unit. Retry was not attempted. An ON-unit was entered as a result of the CONVERSION condition being raised by an invalid character in the string

being converted. The character was not corrected in an ON-unit using the ONSOURCE, ONGSOURCE, or ONCHAR pseudovariables.

**3800**

Length of data aggregate exceeds system limit of 2\*\*24 bytes.

**3804**

Array initialization exceeded maximum depth of iteration.

**3808**

Aggregate cannot be mapped in COBOL or FORTRAN.

**3809**

A data aggregate exceeded the maximum length.

**3810**

An array has an extent that exceeds the allowable maximum.

**3901**

Attempt to invoke process using a process variable that is already associated with an active process.

**3904**

Event variable referenced as argument to COMPLETION pseudovvariable while already in use for a DISPLAY statement.

**3906**

Assignment to an event variable that is already active.

**3907**

Attempt to associate an event variable that is already associated with an active process.

**3908**

Query of installation default of maximum number of threads failed.

**3909**

Attempt to create a subtask (using CALL statement) when insufficient main storage available.

**3910**

Attempt to attach a process (using CALL statement) when number of active processes was already at limit defined by ISASIZE parameter of EXEC statement.

**3911**

WAIT statement in ON-unit references an event variable already being waited for in process from which ON-unit was entered.

**3912**

Attempt to execute CALL with TASK option in block invoked while executing PUT FILE(SYSPRINT) statement.

**3913**

CALL statement with TASK option specifies an unknown entry point.

**3914**

Attempt to call FORTRAN or COBOL routines in two processes simultaneously.

**3915**

Attempt to call a process when the multitasking library was not selected in the link-edit step.

**3920**

An out-of-storage abend occurred.

**3951**

Call to initialize wait failed.

**3952**

Call to perform wait failed.

**3953**

Call to cancel a subtask failed.

**3954**

Call to support PL/I EXCLUSIVE files failed.

## Condition codes 4001 through 9999

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**4001**

Attempt to assign data to an unallocate CONTROLLED variable occurred on a GET DATA statement.

**4002**

Attempt to output an unallocate CONTROLLED variable occurred on a PUT DATA statement.

**4003**

Attempt to assign from an unallocate CONTROLLED variable occurred on a PUT DATA statement with the STRING option.

**5050**

Too many digits specified in JSON floating-point number.

**5051**

Too many digits specified in JSON fixed-point number.

**5052**

Invalid value type in JSON text.

**5053**

Conversion from UTF-8 to character failed.

**5054**

Source in JSON assignment to BIT is invalid.

**5055**

Conversion from UTF-8 to UTF-16 failed.

**5056**

String in JSON text is too long.

**5057**

Characters after \u are not valid hexadecimal digits.

**5058**

Hexadecimal characters specify an invalid UTF surrogate pair.

**5059**

Invalid escape character in JSON text.

**5060**

Only valid value starting with t in JSON text is true.

**5061**

Only valid value starting with f in JSON text is false.

**5062**

Only valid value starting with n in JSON text is null.

**5063**

JSON text ends prematurely.

**5064**

Number does not conform to the rules of JSON syntax.

**5065**

Name in JSON source does not match that in the target.

**5066**

The JSON values true and false may be assigned only to NONVARYING BIT.

**5067**

JSON text contains invalid UTF-8 characters.

**5068**

Objects and arrays in the JSON text are nested too deeply.

**5069**

Next significant character in the JSON text should be an opening bracket, [.

**5070**

Next significant character in the JSON text should be a closing bracket, ].

**5071**

Next significant character in the JSON text should be an opening brace, {.

**5072**

Next significant character in the JSON text should be a closing brace, }.

**5073**

Next significant character in the JSON text should be a comma (,).

**5074**

Next significant character in the JSON text should be a double quotation mark (").

**5075**

Next significant character in the JSON text should be a colon (:).

**5076**

Next significant character in the JSON text should be the start of a JSON value.

**5077**

Next significant character in the JSON text should be a closing bracket, ], or the start of a JSON value.

**5078**

Next significant character in the JSON text should be a double quotation mark (") or a closing brace, }.

**5079**

Next significant character in the JSON text should be a comma (,) or a closing bracket, ].

**5080**

Next significant character in the JSON text should be a comma (,) or a closing brace, }.

**5081**

The member in the target structure matching the JSON source name is an array while the JSON source implies it is a scalar.

**5082**

The member in the target structure matching the JSON source name is a scalar while the JSON source implies it is an array.

**5083**

The member in the target structure matching the JSON source name has a different number of dimensions than the number of dimensions implied by the JSON source.

**5084**

The member in the target structure matching the JSON source name is not a leaf element of that structure.

**8091**

Operation exception.

**8092**

Privileged operation exception.

**8093**

EXECUTE exception.

**8094**

Protection exception.

**8095**

Addressing exception.

**8096**

Specification exception.

**8097**

Data exception.

**8098**

Insufficient stack storage



- 9002**  
Attempt to execute GO TO statement referencing label in an inactive block.
- 9003**  
Attempt to execute a GO TO statement to a nonexistent label constant.
- 9004**  
RETURN without return value attempted from procedure with RETURNS attribute.
- 9005**  
RETURN with return value attempted from procedure without RETURNS attribute.
- 9050**  
Program terminated by an abend.
- 9051**  
An error occurred in CICS. It is highly likely that parameters, particularly pointers, specified on the EXEC CICS command do not point at storage owned by the PL/I program. The ERROR on-unit is not given control. When the TEST run-time option is in effect, PLITEST allows the user to examine variables, etc. but the execution cannot be continued.
- 9200**  
Program check in SORT/MERGE program.
- 9201**  
SORT not supported in CMS.
- 9202**  
RECORD TYPE string missing in the PLISRTx call.
- 9203**  
Incorrect record type specified in the PLISRTx call.
- 9204**  
LENGTH= missing from RECORD TYPE string specification in the PLISRTB or PLISRTD call.
- 9205**  
Length specified in the LENGTH= parameter of the PLISRTx call is not numeric.
- 9206**  
Incorrect return code received from E15 or E35 data-handling routine.
- 9207**  
DFSORT failed with the return code displayed in the message.
- 9208**  
PLISRTx invoked in an environment other than ADMVS.
- 9209**  
Fetch of SMARTSort failed.
- 9210**  
DD for SORT input data set invalid.
- 9211**  
DD for SORT output data set invalid.
- 9212**  
DD for SORT data set missing LRECL or LENGTH.
- 9213**  
DD for SORT data set must specify a TYPE.
- 9214**  
CALL PLISRTx statement missing a SORT FIELDS string.
- 9215**  
SORT FIELDS parameter of CALL PLISRTx statement specified too many fields.
- 9216**  
SORT FIELDS parameter of CALL PLISRTx statement contained invalid start, length fields, or both.

**9217**

    SORT FIELDS parameter of CALL PLISRTx statement contained invalid form.

**9218**

    SORT FIELDS parameter of CALL PLISRTx statement contained invalid sequence.

**9249**

    Routine cannot be released.

**9250**

    Procedure to be fetched cannot be found.

**9251**

    Permanent transmission error when fetching a procedure.

**9252**

    FETCH/RELEASE not supported in CMS.

**9253**

    PLITEST unavailable.

**9254**

    Attempt made to release load module containing non-PL/I high level language programs.

**9255**

    SORT FIELDS parameter of CALL PLISRTx statement contained invalid sequence.

**9258**

    Routine compiled with NORENT cannot fetch routine compiled with RENT.

**9999**

    A failure occurred in invocation of a Language Environment service.

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