Release Notes
ATLAS Compiler
Version 03.23.12 (20051202)
4 December 2005

1 Overview

The following describes an overview of changes included within version 20051202 (3.23.12) of the following ATLAS compiler(s)

CASS / RT
ESTS / PAWS
IFTE / PAWS

and version 20051202 (3.23.12) of the following ATLAS support tools:

ATLAS Compiler Linker

and version 20051117 (3.23.11) of the following ATLAS support tools:

ATLAS Signal Resource Allocator

1.1 Enhancements

1.2 Problem Reports

05-020, 05-036, 05-037, 05-999, 05-998, 05-997

2.0 Detailed Description

2.1 Enhancements

2.2 Problem Reports

2.2.1 05-020 Increase Maximum List Length (CASS / RT)

The maximum list length for all IEEE716 / 1985 based compilers was limited to 65,535 since the symbol table entry for variables maintained the list length as an unsigned short (16bit) integer. In order to support CASS TPS's it was necessary to allow a maximum list length of 132,768.

This release of the CASS / RT compiler allows that maximum list length. The changes were implemented in such a way to ensure backwards compatibility.

2.2.2 05-036 Floating Point Numbers (ESTS / PAWS)

Floating point number representations are, by definition, approximations of the actual real value. In addition each arithmetic operation can introduce a potential error equal in value to the least significant bit of the mantissa.

The legacy ESTS compiler requires that modifier values always be specified in base units, i.e. V, SEC. Units representing multiples, e.g. KV, or sub-multiples USEC etc, are disallowed. Both the PAWS ATLAS compiler, and more importantly, the Device Database Compiler accept those multiple / sub-multiple units.

If those units are used in the Device Database there is the possibility that two approximation errors are introduced. First the multiplication factor may not be able to be represented exactly, this is especially probable with negative powers of 10, i.e. sub-multiples. Second the multiplication may introduce an error

As a result is is strongly recommended that ESTS Device Databasae models use only base units when specifying modifier dimensions.

2.2.3 05-037 Signal Flow Analyzer - "No More Room"

When the Signal Flow Analyzer was processing TPS33, after a long period, the process terminated with the fatal error "No More Room". A workaround was provided to use the 'q' option in addition to the 'n' option.

This release of the Signal Flow Analyzer adds additional semantics to the 'n' option such that the 'q' option is no longer required, or recommended. The additional processing is not just a duplication of the 'q' option semantics.

2.2.4 05-999 UUT Interface Names (ESTS / PAWS, IFTE / PAWS)

Previous releases of the subject ATLAS compilers did not recognise the use of certain characters in DEFINE, INTERFACE names, in some contexts. The characters that were not recognised are as follows:

.	period
+	plus sign
_	underscore
*	asterisk

This release of the subject ATLAS compilers correctly recognises the the use of those characters.

2.2.5 05-998 Signal Flow Analyzer - '-n' Option (ESTS / PAWS, IFTE / PAWS)

As a result of the the nature of the subject ATLAS subsets it has always been recommended that the -n option be used with those subsets.

The -n option disables complete flow analysis, in particular the reporting of what is deemed as inappropriate statement sequence, i.e "apply of active signal".

The subject subsets define the single action equivalent of the MEASURE verb as being, SETUP + CONNECT + INITIATE + FETCH. Most other ATLAS subsets add the RESET and DISCONNECT to that sequence. The effect is that a completed MEASURE statement leaves the 'signal as *active*. As a result with the exception of the first MEASURE statement using a particular resource all subsequent MEASURE statements will issue the message "measure of active signal". When such a message is issued the signal flow analyser attempts to trace back to locate all statements where the signal was activated, i.e all preceding MEASURE statements. This

process is both very time consuming and produces a very large number of messages. It is for these reasons that use of the -n option is recommended for the subject subsets.

To encourage that option usage, this release of the Signal Flow Analyser issues the WARNing message "Option -n recommended for this Subset..." is the -n option is not selected.

2.2.6 05-997 Signal Flow Analyser - "Missing FNC or DEV" (ESTS / PAWS, IFTE / PAWS)

The signal flow analyser would issue the ERROR message "Missing DEV or FNC" when processing *large* TPS's built with the subject ATLAS subsets. The cause was that those subsets generate some unique code that did not meet ths assumptions that had been made in the Signal Flow Analyser.

This release of the Signal Flow Analyser has changed to process the unique code associated with the subject subsets.

3.0 Notes

3.1 ATLAS Compiler Linker

Additional debugging capabilities were added to enhance the analysis of problems that occurred with *large* TPS's.

3.2 Signal Resource Allocator

Distribute the correct version, 20051117 (3.23.11), of this component.