Compiler Roadmap

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IBM Z

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Disclaimer

Any reference to future plans are for planning purposes only. IBM reserves the right to change those plans at its discretion. Any reliance on such a disclosure is solely at your own risk. IBM makes no commitment to provide additional information in the future.

As Is

GCC 4.6
(PJ39969 – Oct 2012)

libstdc++ 4.6

C11 experimental support
C++11 experimental support

GNU lifecycle support:
2011/03/25 – 2013/04/12

Dignus 1.98
(PJ42285 – Oct 2014)

libstdc++ 4.6 *(mirrors GCC 4.6)*

C11 experimental support
C++11 experimental support

GCC 7
(PJ45408 – Mar 2019)

libstdc++ 7

C11 full support (optional)
C++11 full support
C++14 full support (default)

GNU lifecycle support:
2017/05/02 – 2019/11/14

C libraries

glibc 2.3.2 (CISO and CLBM)

Separate OCO, POSIX threads library (CTHD)

Recent GCC 7 deliverables

– PJ45408 / tpf-17r1-1 – Mar 2019	GCC 7 support
– PJ45799 / tpf-17r1-2 – Oct 2019	Selectively skip function trace support
– PJ46042 / tpf-17r1-3 – Jan 2020	tpf-17r1-2 not backwards compatible
– PJ46318 / tpf-17r1-4 – Dec 2020	ICE uncovered in tpf-17r1-3
– PJ46408 / tpf-17r1-5 – Jan 2021	Prebuilt tpf-17r1-4 incompatible with many Linux on Z systems

Recent GCC 7 deliverables

1. PJ45408 added support for GCC 7 (compiler release tpf-17r1-1)
   - Updated z/TPF libraries as needed to support GCC 7
   - Delivered new version of libstdc++ (CPP1) compatible with GCC 7
   - Support for full C++11 and C++14 standards
2. PJ45799 added support to selectively skip function trace (release tpf-17r1-2)
   - Feature exclusive to GCC 7 compiler
   - Can remove function trace entries that have no diagnostic value and reduce time spent in function trace processing
   - Enabled for glibc (CISO) and libstdc++ (CPP1) libraries

Recent GCC 7 deliverables

3. PJ46042 corrects an issue with tpf-17r1-2 not being backwards compatible with APAR levels prior to PJ45799 (release tpf-17r1-3)
   - Preventative measure, no z/TPF rebuild requirements
   - Will always have a z/TPF APAR coupled with a compile update for maintability
4. PJ46318 corrects an internal compiler error (ICE) uncovered in all versions of GCC 7 (release tpf-17r1-4)
   - ICE has no run time impact, no z/TPF rebuild requirements
5. PJ46408 repackages GCC 7 pre-built binaries to be compatible with more Linux on Z systems (release tpf-17r1-5)
   - No issues with source or any applications that already compiled, no z/TPF rebuild requirements

As Is

GCC 4.6*
(PJ39969 – Oct 2012)

libstdc++ 4.6

C11 experimental support
C++11 experimental support

Dignus 1.98
(PJ42285 – Oct 2014)

libstdc++ 4.6 *(mirrors GCC 4.6)*

C11 experimental support
C++11 experimental support

GCC 7
(PJ45408 – Mar 2019)

libstdc++ 7

C11 full support (not default)
C++11 full support
C++14 full support (default)

C libraries

glibc 2.3.2 (CISO and CLBM)

Separate OCO, POSIX threads library (CTHD)

To Be

GCC 7*
(PJ45408 – Mar 2019)

libstdc++ 7

C11 full support (default)
C++11 full support
C++14 full support (default)
C++17 experimental support

Dignus 2.25
(Target 2H 2021)

libstdc++ 7 *(mirrors GCC 7)*

C11 full support (default)
C++11 full support
C++14 full support (default)
C++17 experimental support

GCC 11*
(Target 1H 2023)

libstdc++ 11

C11 full support (default)
C17 full support
C20 experimental support
C++11, C++14 full support
C++17 full support (default)
C++20 full support

C libraries
(Target 1H 2022)

glibc 2.33 (CISO, CLBM, and CTHD)

Native POSIX threads library (NPTL) included in glibc

* Expect GCC 4.6 statement of deprecation this year, targeting the end of 2022 to formally discontinue support.

Thank you