What's new in DWARF and why do you care?

Change of administration

- Don't want the formalism of C++ standard
- Many of the same people involved - just nicer person at the top
- More public

Public dwarf-discuss mailing list
Current working draft published daily - changelog https://git.dwarfstd.org/dwarf-spec
https://snapshots.sourceware.org/dwarfstd/dwarf-spec/latest/
Not in a hurry to release DWARF6 - lots of issues

- Linemap table - not like nvidia did it
- GPU support as accepted upstream merge of SW GDB, LLVM
    - Locations on stack
    - Offsets
    - Piece operators
    - Address spaces - not like nvidia did it.
- Vector support
    - Include SVE/RVV
    - Vector types
    - Push lanes

DWARF not just for debuggers anymore

- ABI tools
- Performance tools
- Binary analysis tools
    - Use DWARF to understand structure of types, symbols, source mapping, etc.

Size of DWARF

- Move DWARF out of binary
    - Split DWARF
        - In DWARF5. The standard defines which pieces of .debug* sections get retained and which get pushed to .dwo file
        - Ben TODO: which pieces are specified in the standard?
    - debug alt links
        - Effectively creates two ELF files: one is stripped of DWARF and the other has it; non-standard extension!
- DWZ compression
    - No support yet in build systems (e.g., CMake, automake, etc.)
    - CMake mailing list entry from David Blaikie
    - Has been proposed in CMake, but no movement (21179)
    - Discussed as part of debug-awareness revamp proposed by Craig Scott
- Debuginfo[d]
    - client/server built into elfutils for fetching DWARF "over the wire"

- Other formats
    - Compact C Type Format
    - BPF Type Format
        - Berkeley Packet Filter

- Libunwind
    - Ben TODO: check on optimization status and signal safety
- DWARF linter
    - None found. Could it be developed?

What other things do you need? Really think about it.

Attendees:

Tim Haines
Jim Kupsch
Ben Woodard
Bert Wesarg
Cedric Valensi
Josef “Bolo” Burger