IntelJ3 flash burner Overview

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ANDES TECHNOLOGY

Architecture for **N**ext-generation
Digital **E**ngine for **S**oC

Outline

- IntelJ3 flow chart
- Parse parameters
- Socket connect to ICEman
- Burn image
- Flash dependent functions
- Target-related function (opt.)
- Burn data not block-aligned (opt.)

IntelJ3 flow chart

- **Main**
  - Parse parameters
  - Initial socket and connect to ICEman
  - Target-related function (optional)
  - Get burning image
  - Check flash ID
  - Verify Flash content with image if verify_only is on.
  - Unlock flash (optional)
  - Record the first and last erase blocks (optional)
  - Block erase
  - Burn image
  - Burn back the first and last erase block (optional)
  - Verify burning result (optional)
  - Lock flash (optional)

Required Parse parameters

- --base
  - Specify the flash base address
- --addr
  - Specify the flash target address to write
- --image=*FILENAME*
  - Specify the image name to burn

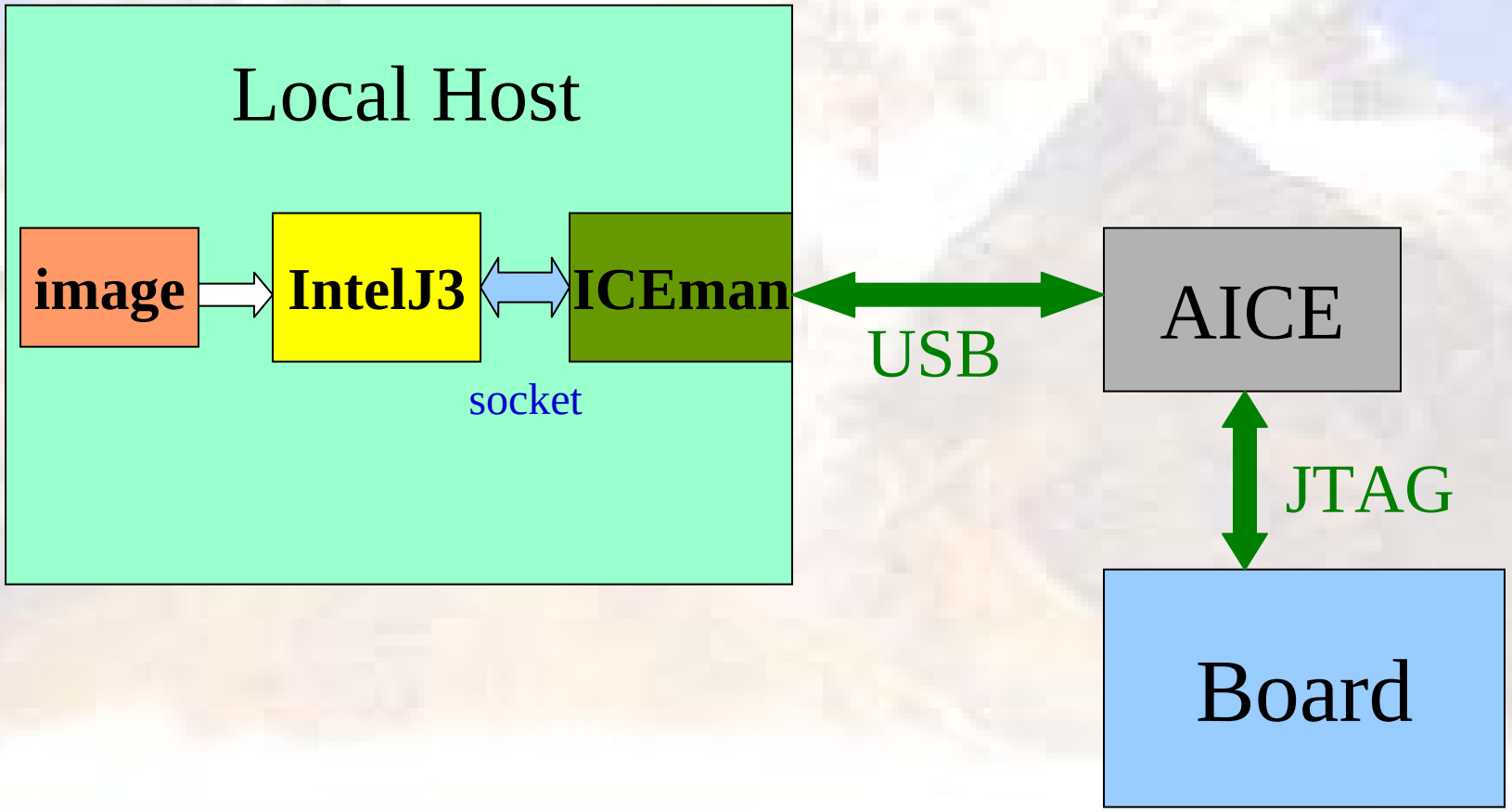
Optional Parse parameters

- --port
  - Specify the port number to connect with ICEman (default to 2354)
- --preserve
  - Preserve the content in the first and last erase blocks
- --log
  - Specify the log file to store output message (default to stdout)
- --reset-target
  - Target reset
- --reset-hold
  - Target reset and stop at $IVB
- --target (XC5|AG101|AG101P_16MB)
  - Specify the board type (xc5/ag101/ag101p_16mb) to map ROM start address to 0x0 (Note that this option doesn't support board types other than the boards listed above)

Optional Parse parameters

- --verify
  - Verify after flash burning
- --verify-only
  - Only verify the content of Flash
- --version
  - Show flash burning version
- --unlock
  - Unlock flash before burning
- --lock
  - Lock flash after burning
- --fast
  - Burning flash in fast mode
- --erase-all
  - Erase entire flash before burning
- --help
  - List the usages of the burnerTarget reset

Socket connect to ICEman

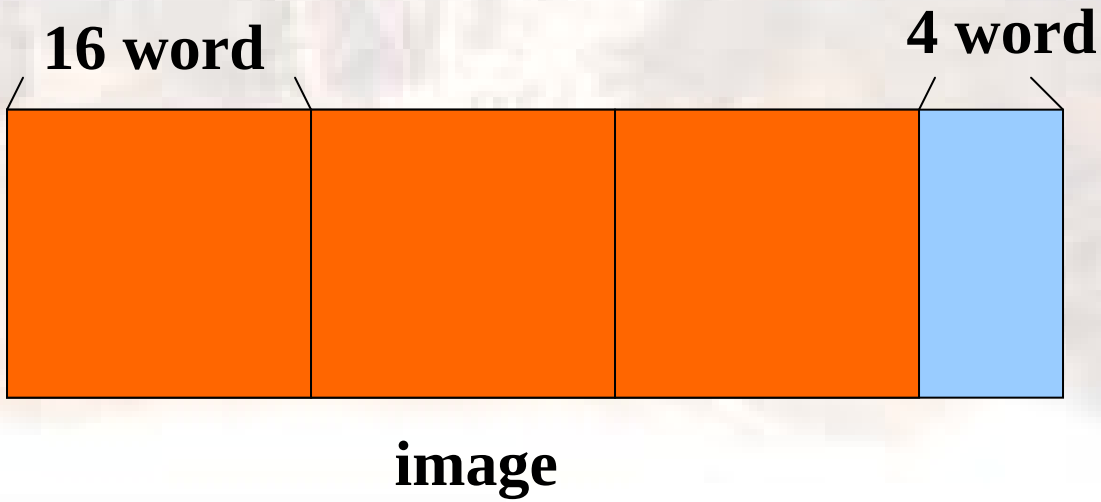


Socket connect to ICEman

- **Initial socket and default connect to port 2354**
  - ICEman default open port 2354 for burner
- **Communication API**
  - outw (address, data)
    - write word data to bus by ICEman
  - inw(address)
    - read word data from bus by ICEman
  - fastin(address, size, buffer)
    - read multi-word data from bus by ICEman
  - fastout(address, size, buffer)
    - write multi-word data to bus by ICEman
  - multiout(address, data, num_of_pairs)
    - write multi-words to different addresses by ICEman

Burn image

- **Burn_image()**
  - Intelj3 provides multi-word burning(16 word max) to reduce burning time
- **Split image and Burn 16 word at once if possible**



Flash dependent functions

- **Flash_ReadID()**
- **Flash_Reset()**
- **Flash_ChipErase()**
- **Flash_ProgramByte()**
- **Flash_ProgramHalfWord()**
- **Flash_ProgramWord()**
- **Flash_ProgramMultiWord()**
  - Max 16 word for intelJ3

Target-related functions (opt.)

- **xc5(), ag101(), ag301p(), p24()**
  - Check AHBC for remapping status
  - Disable write-protect
  - Calculate Flash base address

Burn data not block-aligned (opt.)

- In case that users want to burn the address which isn't block-aligned
- Preserve the content before erase block
- Burn back content after erase block