

`abits+33`

34

33

2

1

0

address

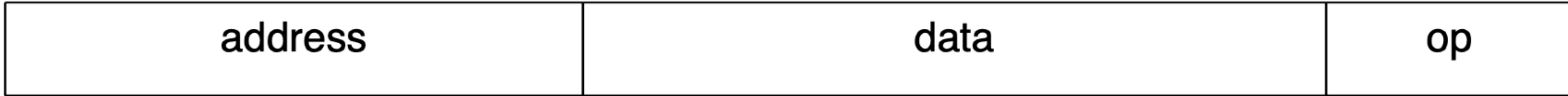
data

op

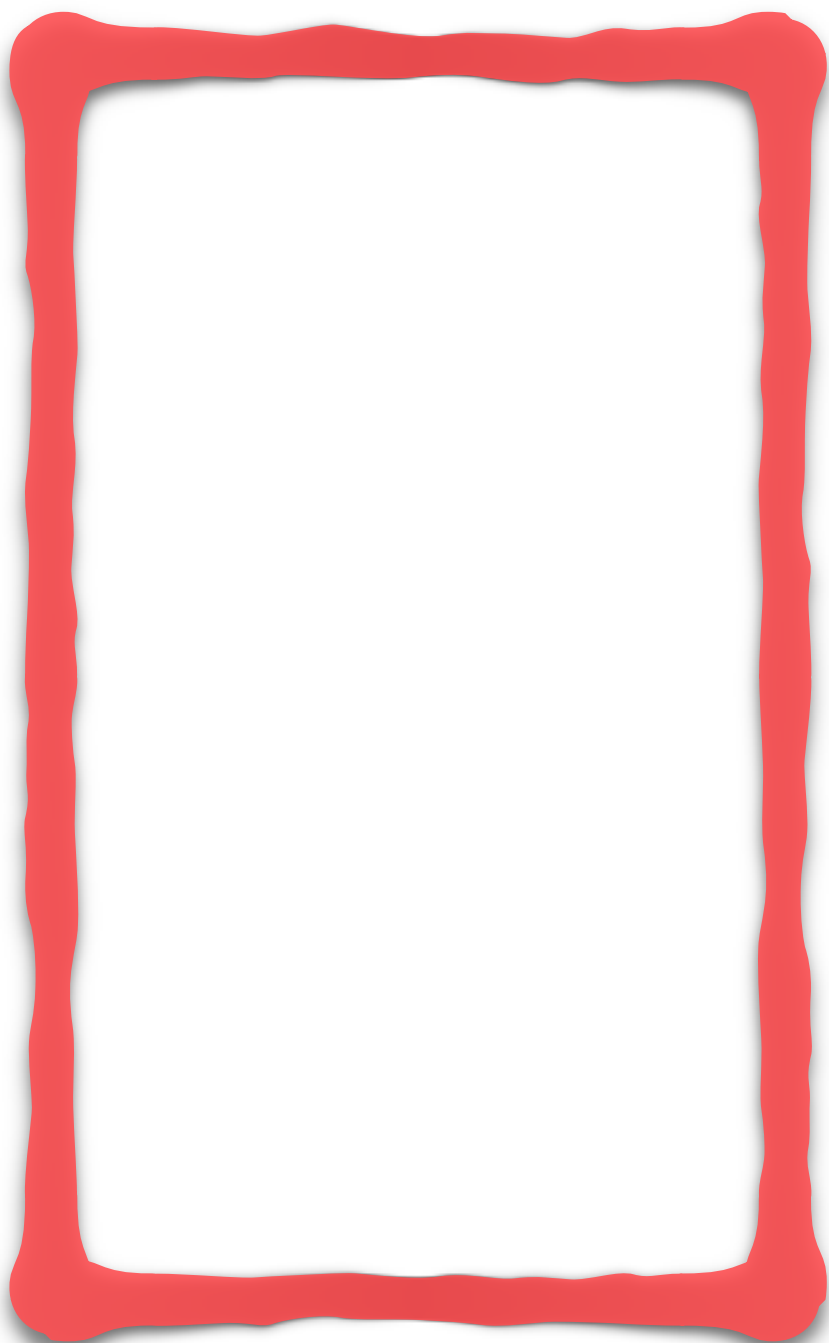
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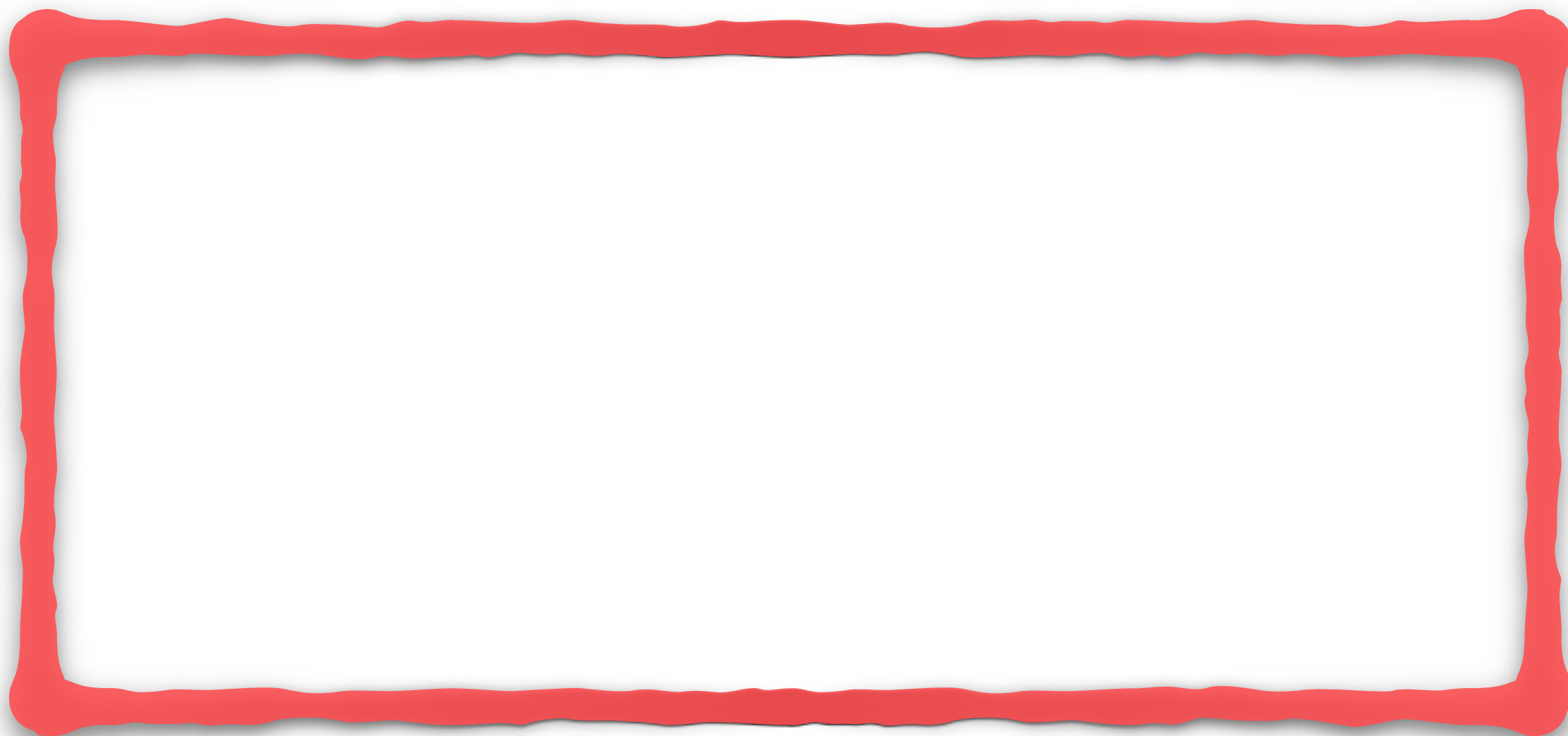
32

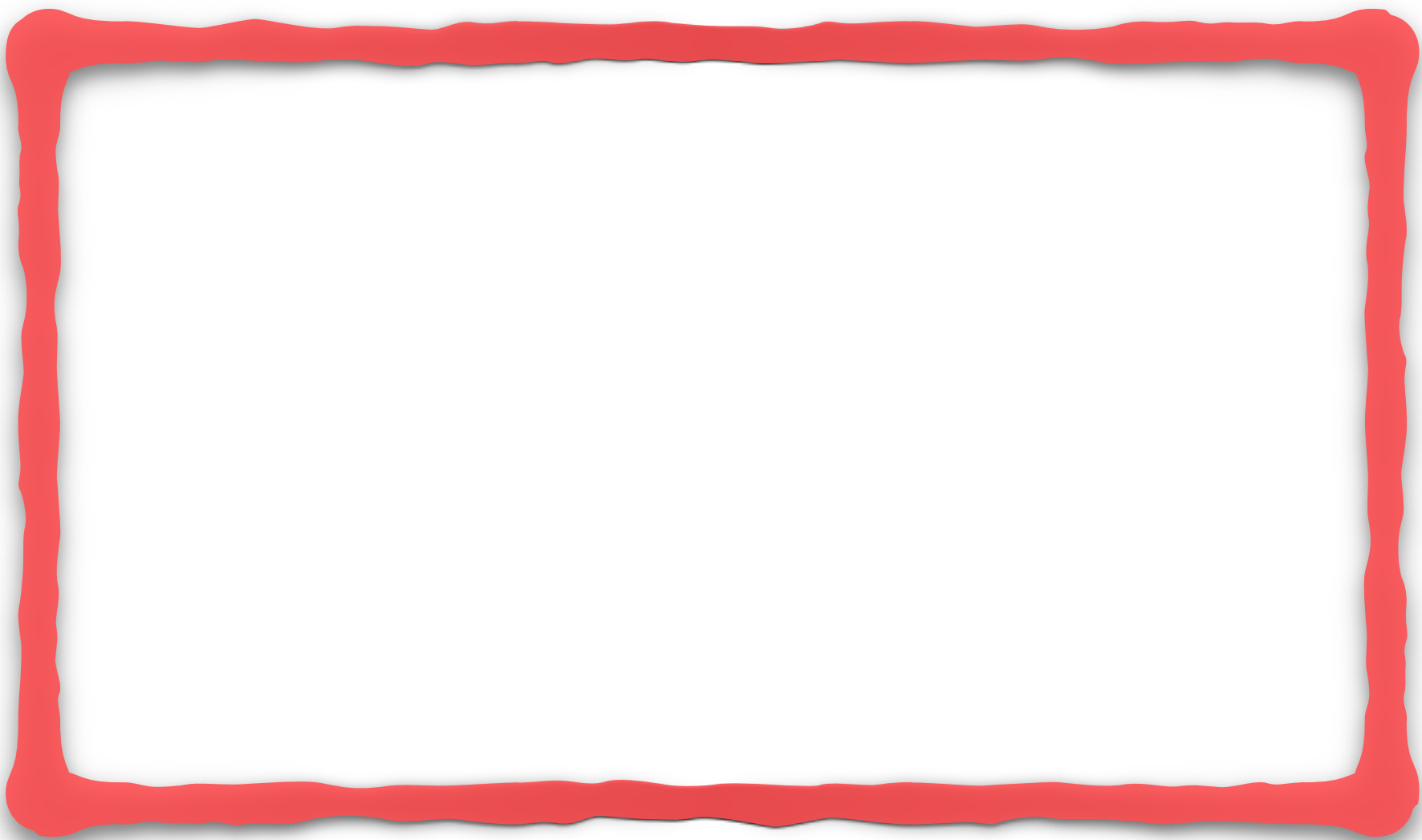
2

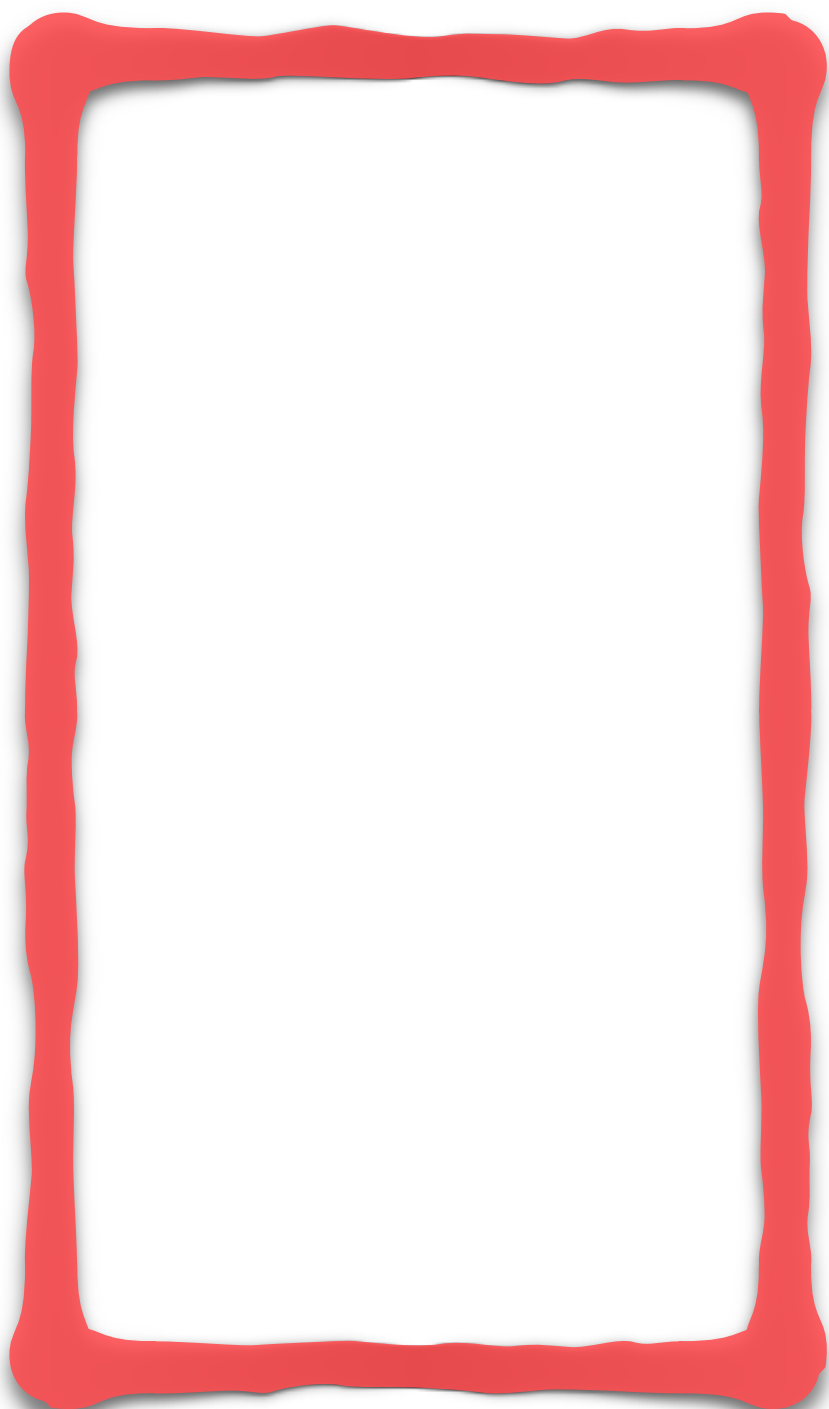


0x0d	Abstract Data 9 (data9)
0x0e	Abstract Data 10 (data10)
0x0f	Abstract Data 11 (data11)
0x10	Debug Module Control (dmcontrol)
0x11	Debug Module Status (dmstatus)
0x12	Hart Info (hartinfo)
0x13	Halt Summary 1 (haltsum1)
0x14	Hart Array Window Select (hawindowssel)
0x15	Hart Array Window (hawindow)
0x16	Abstract Control and Status (abstractcs)
0x17	Abstract Command (command)
0x18	Abstract Command Autoexec (abstractauto)
0x19	Configuration Structure Pointer 0 (confstrptr0)
0x1a	Configuration Structure Pointer 1 (confstrptr1)
0x1b	Configuration Structure Pointer 2 (confstrptr2)
0x1c	Configuration Structure Pointer 3 (confstrptr3)
0x1d	Next Debug Module (nextdm)
0x1f	Custom Features (custom)
0x20	Program Buffer 0 (progbuf0)
0x21	Program Buffer 1 (progbuf1)
0x22	Program Buffer 2 (progbuf2)
0x23	Program Buffer 3 (progbuf3)
0x24	Program Buffer 4 (progbuf4)
0x25	Program Buffer 5 (progbuf5)
0x26	Program Buffer 6 (progbuf6)
0x27	Program Buffer 7 (progbuf7)
0x28	Program Buffer 8 (progbuf8)
0x29	Program Buffer 9 (progbuf9)
0x2a	Program Buffer 10 (progbuf10)
0x2b	Program Buffer 11 (progbuf11)
0x2c	Program Buffer 12 (progbuf12)
0x2d	Program Buffer 13 (progbuf13)
0x2e	Program Buffer 14 (progbuf14)
0x2f	Program Buffer 15 (progbuf15)
0x30	Authentication Data (authdata)
0x32	Debug Module Control and Status 2 (dmcs2)
0x34	Halt Summary 2 (haltsum2)
0x35	Halt Summary 3 (haltsum3)
0x37	System Bus Address 127:96 (sbaddress3)
0x38	System Bus Access Control and Status (sbcs)
0x39	System Bus Address 31:0 (sbaddress0)
0x3a	System Bus Address 63:32 (sbaddress1)
0x3b	System Bus Address 95:64 (sbaddress2)
0x3c	System Bus Data 31:0 (sbdata0)
0x3d	System Bus Data 63:32 (sbdata1)
0x3e	System Bus Data 95:64 (sbdata2)
0x3f	System Bus Data 127:96 (sbdata3)
0x40	Halt Summary 0 (haltsum0)
0x70	Custom Features 0 (custom0)
0x71	Custom Features 1 (custom1)
0x72	Custom Features 2 (custom2)
0x73	Custom Features 3 (custom3)
0x74	Custom Features 4 (custom4)
0x75	Custom Features 5 (custom5)
0x76	Custom Features 6 (custom6)
0x77	Custom Features 7 (custom7)
0x78	Custom Features 8 (custom8)
0x79	Custom Features 9 (custom9)
0x7a	Custom Features 10 (custom10)
0x7b	Custom Features 11 (custom11)
0x7c	Custom Features 12 (custom12)
0x7d	Custom Features 13 (custom13)
0x7e	Custom Features 14 (custom14)
0x7f	Custom Features 15 (custom15)







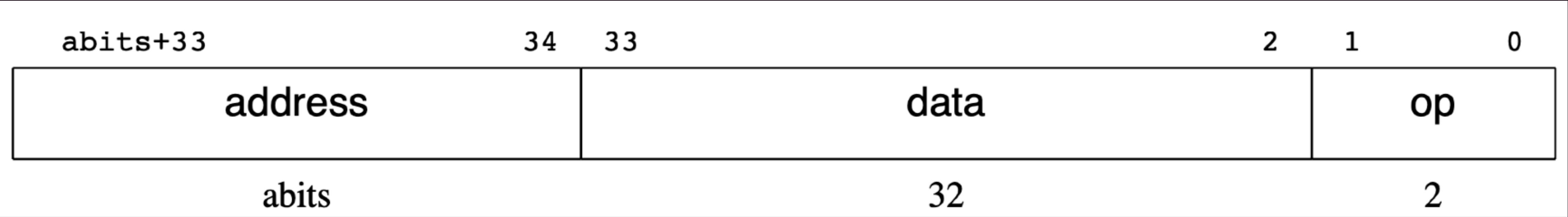


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0x29	Program Buffer 9 (progbuf9)
0x2a	Program Buffer 10 (progbuf10)
0x2b	Program Buffer 11 (progbuf11)
0x2c	Program Buffer 12 (progbuf12)
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0x7e	Custom Features 14 (custom14)
0x7f	Custom Features 15 (custom15)

Debug Module Interface

JTAG dmi: 0x11

0: success
2: failed
3: busy



address: 7-32 bits

data: 32 bits read/write

0: ignore
1: read
2: write

What Do We Need for a Debugger?

RISC-V Debug Specification

Memory

- ? Peek
- ? Poke

Registers

- ? Read
- ? Write

Control

- ? Halt
- ? Step
- ? Reset
- ? Break