Code

./arch/x86/events/perf_event.h

```
780  #ifdef CONFIG_X86_32
781    return ip > PAGE_OFFSET;
782  #else
783    return (long)ip < 0;
784  #endif
```

defined by

Variability Model

./arch/x86/Kconfig

```
    9  config X86_32
   10    def_bool y
   11    depends on !64BIT
 […]
 1811  config KEXEC_FILE
 1812    bool "[…]"
 […]
 1818  ---help---
 1819      This is […]
```

defined by

Build

./arch/x86/Kbuild

```
   24  obj-$(CONFIG_KEXEC_FILE) += purgatory/
```

./arch/x86/Makefile

```
  194  ifeq ($(CONFIG_KEXEC_FILE),y)
  195    $(Q)$(MAKE) $(build)=[…]/kexec-purgatory.o
  196  endif
```

Code

	Commit Excerpt
780	`#ifdef CONFIG_X86_32`
781	`return ip > PAGE_OFFSET;`
782	`-#else` ← *Variability information*
783	`-  return (long)ip < 0;` ← *Artifact-specific information*
784	`#endif`

Variability Model

	Commit Excerpt
1811	`+config KEXEC_FILE`
1812	`+  bool "[…]"` ← *Variability information*
[…]	
1818	`+---help---` ← *Artifact-specific information*
1819	`+    This is […]`

Build

	Commit Excerpt
194	`-ifeq ($(CONFIG_KEXEC_FILE),y)` ← *Variability information*
195	`-  $(Q)$(MAKE) $(build)=[…]` ← *Artifact-specific information*
196	`-endif` ← *Variability information*

Linux
80,423
7.73%
17,488
1.68%
100,804
9.69%
841,405
80.89%

coreboot
3,479
7.06%
9,924
20.15%
9,101
18.48%
26,748
54.31%

BusyBox
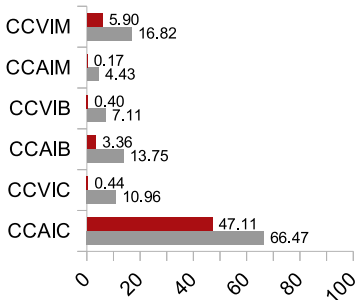1,162
14.05%
126
1.52%
1,199
14.49%
5,785
69.93%
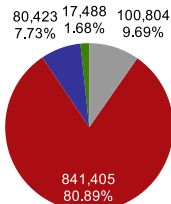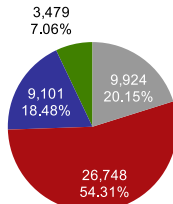
axTLS
6
3.35%
16
8.94%
62
34.64%
95
53.07%
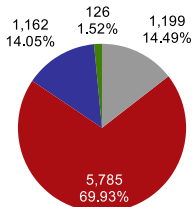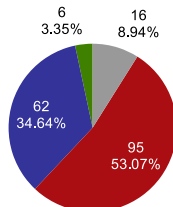
■ Only variability information changes ■ Variability and artifact-specific information changes
■ Only artifact-specific information changes ■ Only changes to excluded artifacts
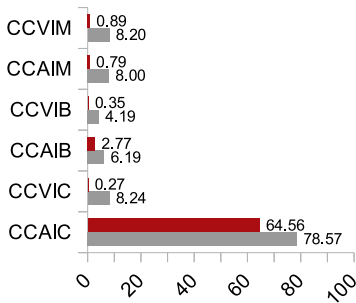
Linux
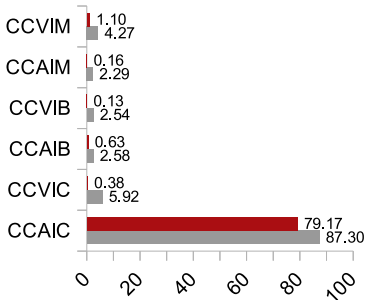
CCVIM	1.10 / 4.27
CCAIM	0.16 / 2.29
CCVIB	0.13 / 2.54
CCAIB	0.63 / 2.58
CCVIC	0.38 / 5.92
CCAIC	79.17 / 87.30

coreboot

CCVIM	5.90 / 16.82
CCAIM	0.17 / 4.43
CCVIB	0.40 / 7.11
CCAIB	3.36 / 13.75
CCVIC	0.44 / 10.96
CCAIC	47.11 / 66.47

All ▪ Exclusive

CCVIM = Commits Changing Variability Information in Model artifacts
CCAIM = Commits Changing Artifact-specific Information in Model artifacts
CCVIB = Commits Changing Variability Information in Build artifacts
CCAIB = Commits Changing Artifact-specific Information in Build artifacts
CCVIC = Commits Changing Variability Information in Code artifacts
CCAIC = Commits Changing Artifact-specific Information in Code artifacts

BusyBox

	All	Exclusive
CCVIM	8.20	0.89
CCAIM	8.00	0.79
CCVIB	4.19	0.35
CCAIB	6.19	2.77
CCVIC	8.24	0.27
CCAIC	78.57	64.56

axTLS

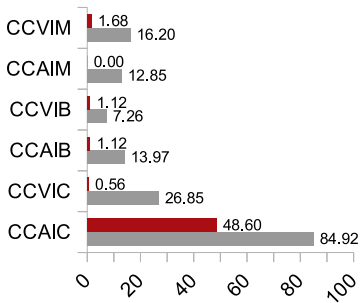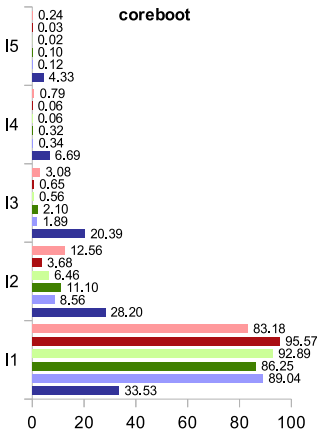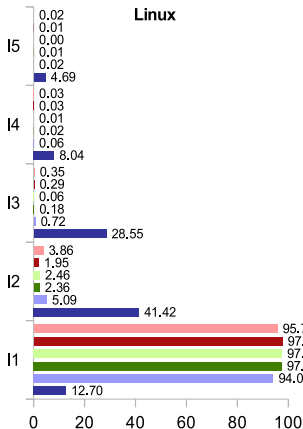|	All	Exclusive
CCVIM	16.20	1.68
CCAIM	12.85	0.00
CCVIB	7.26	1.12
CCAIB	13.97	1.12
CCVIC	26.85	0.56
CCAIC	84.92	48.60

■ All ■ Exclusive

CCVIM = Commits Changing Variability Information in Model artifacts
CCAIM = Commits Changing Artifact-specific Information in Model artifacts
CCVIB = Commits Changing Variability Information in Build artifacts
CCAIB = Commits Changing Artifact-specific Information in Build artifacts
CCVIC = Commits Changing Variability Information in Code artifacts
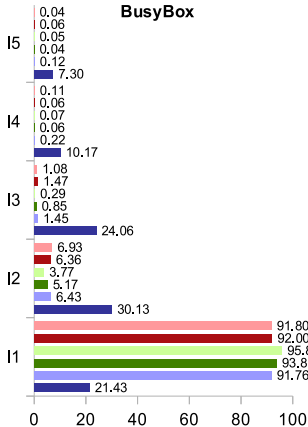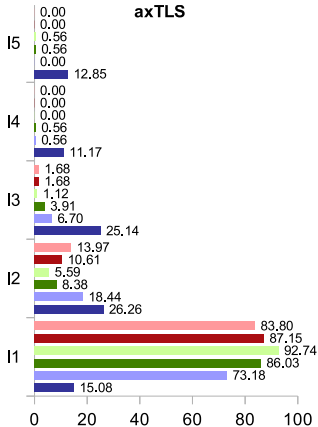CCAIC = Commits Changing Artifact-specific Information in Code artifacts

Linux

coreboot

I5
- 0.02
- 0.01
- 0.00
- 0.02
- 0.02
- 4.69

I4
- 0.03
- 0.03
- 0.01
- 0.02
- 0.06
- 8.04

I3
- 0.35
- 0.29
- 0.06
- 0.18
- 0.72
- 28.55

I2
- 3.86
- 1.95
- 2.46
- 2.36
- 5.09
- 41.42

I1
- 95.73
- 97.71
- 97.46
- 97.42
- 94.08
- 12.70

I5
- 0.24
- 0.03
- 0.02
- 0.10
- 0.12
- 4.33

I4
- 0.79
- 0.06
- 0.06
- 0.32
- 0.34
- 6.69

I3
- 3.08
- 0.65
- 0.56
- 2.10
- 1.89
- 20.39

I2
- 12.56
- 3.68
- 6.46
- 11.10
- 8.56
- 28.20

I1
- 83.18
- 95.57
- 92.89
- 86.25
- 89.04
- 33.53

Changed Model Lines containing Variability Information (CMLVI)
Changed Model Lines containing Artifact-specific Information (CMLAI)
Changed Build Lines containing Variability Information (CBLVI)
Changed Build Lines containing Artifact-specific Information (CBLAI)
Changed Code Lines containing Variability Information (CCLVI)
Changed Code Lines containing Artifact-specific Information (CCLAI)

Intervals of changed lines:
I1 = 0
I2 = 1-10
I3 = 11-50
I4 = 51-100
I5 = 101-200

BusyBox and **axTLS** — charts showing the distribution of changed lines across intervals I1–I5.

Legend:
- ■ Changed Model Lines containing Variability Information (CMLVI)
- ■ Changed Model Lines containing Artifact-specific Information (CMLAI)
- ■ Changed Build Lines containing Variability Information (CBLVI)
- ■ Changed Build Lines containing Artifact-specific Information (CBLAI)
- ■ Changed Code Lines containing Variability Information (CCLVI)
- ■ Changed Code Lines containing Artifact-specific Information (CCLAI)

Intervals of changed lines:
I1 = 0
I2 = 1-10
I3 = 11-50
I4 = 51-100
I5 = 101-200

BusyBox values:

I5: 0.04, 0.06, 0.05, 0.04, 0.12, 7.30
I4: 0.11, 0.06, 0.07, 0.06, 0.22, 10.17
I3: 1.08, 1.47, 0.29, 0.85, 1.45, 24.06
I2: 6.93, 6.36, 3.77, 5.17, 6.43, 30.13
I1: 91.80, 92.00, 95.81, 93.81, 91.76, 21.43

axTLS values:

I5: 0.00, 0.00, 0.56, 0.56, 0.00, 12.85
I4: 0.00, 0.00, 0.56, 0.56, 11.17
I3: 1.68, 1.68, 1.12, 3.91, 6.70, 25.14
I2: 13.97, 10.61, 5.59, 8.38, 18.44, 26.26
I1: 83.80, 87.15, 92.74, 86.03, 73.18, 15.08