

GCIS Hash-to-Password Recovery & Cryptographic Side-Channel Report

CHARGE ANALYSIS - OVERVIEW

INDIVIDUAL VALUES (20 characters):

```
'0' -> -1 '1' -> -1 '3' -> -1 '4' -> -1  
'6' -> -1 '8' -> -1 'B' -> -1 'G' -> -1  
'H' -> -1 'N' -> -1 'T' -> -1 'U' -> -1  
'X' -> -1 'c' -> -1 'd' -> -1 'e' -> -1  
'f' -> -1 'v' -> -1 'y' -> -1 'z' -> -1
```

TOTAL: $20x - 1$, $0x + 1$

SIGNIFICANT (100.0% uniform charge) - Dominant charge: -1

PATTERN CONSISTENCY ANALYSIS

20/20 bytes show 100% pattern consistency
RESULT: All password bytes have UNIQUE, CONSISTENT sign patterns

STATISTICAL SUMMARY

Pearson Correlation: 1.0000
Bit-Sign Agreement: 100.00%

INPUT DATA

```
 Password: Bv3Hy8Tz1Uc6Gd0Nf4Xe  
 Password Bitstring:  
 01000010 01101010 00110011 01001000 01111001 00111000 01010100 01111010 00110001 01010101  
 01000011 00101101 00000111 01100100 00110000 01000110 01100110 00110100 01010100 01100101
```

Layer 1 (es16): 1024 bits

Layer 2 (zfa90): 463 bits

Bitstring:

00001110101001000010010001101001000010100011110101011011110011010010011101100100100101100110000000

Sign sequence (complete):

PAGE 2: LAYER DATA + CHARGE DETAILS

LAYER: es16 (1024 bits)

Character positions and charges:

```
'0' @ 43-->-1, 50-->-1, 273-->-1, 639-->-1 -> Charge: -1
'1' @ 195-->-1, 346-->-1, 606-->-1 -> Charge: -1
'3' @ 127-->-1, 731-->-1 -> Charge: -1
'4' @ 435-->-1, 698-->-1, 822-->-1 -> Charge: -1
'6' @ 704-->-1 -> Charge: -1
'8' @ 172-->-1, 425-->-1 -> Charge: -1
'B' @ 30-->-1, 552-->-1, 616-->-1, 626-->-1 -> Charge: -1
'G' @ 72-->-1, 169-->-1, 245-->-1, 376-->-1 -> Charge: -1
'H' @ 27-->-1, 285-->-1, 801-->-1, 874-->-1 -> Charge: -1
'N' @ 307-->-1, 583-->-1, 922-->-1 -> Charge: -1
'T' @ 281-->-1, 303-->-1, 413-->-1, 972-->-1 -> Charge: -1
'U' @ 749-->-1, 766-->-1, 768-->-1, 908-->-1 -> Charge: -1
'X' @ 81-->-1, 402-->-1, 517-->-1, 575-->-1 -> Charge: -1
'c' @ 83-->-1, 384-->-1 -> Charge: -1
'd' @ 633-->-1, 1010-->-1 -> Charge: -1
'e' @ 132-->-1, 181-->-1, 258-->-1, 476-->-1 -> Charge: -1
'f' @ 128-->-1, 343-->-1 -> Charge: -1
'v' @ 138-->-1, 254-->-1, 339-->-1, 380-->-1 -> Charge: -1
'y' @ 10-->-1, 505-->-1, 856-->-1, 881-->-1, 899-->-1 -> Char
'z' @ 76-->-1, 446-->-1 -> Charge: -1
```

LAYER: zfa90 (463 bits)

```
Bitstring:  
0000111010100100010010001101001000010100011110101011110011010010011101100100101100110000000  
1100011111111010100010001000100100100011110100111100100110111000101000001110100011110101000  
1001111100001000001010001111010000011011011000101000001101000010101011110111101110110100110  
0000101010001111011101100100110011000111100101110010101000111000010000101010001010101101  
1001101110110101100000001001010111000100111100100011000110000110000110000110000110000110001  
Sign sequence: -1, -1, -1, -1, +1, +1, +1, -1, +1, -1, +1, -1, -1, -1, -1, -1, +1, -1, +1, -1, -1, +1, +1, -1, -1, -1, -1, +1, -1, +1, ...
```

Character positions and charges:

'0' @ 84-->-1, 200-->-1, 280-->-1, 445-->-1 -> Charge: -1
'1' @ 93-->-1, 451-->-1 -> Charge: -1
'3' @ 311-->-1 -> Charge: -1
'4' @ 23-->-1, 58-->-1, 246-->-1 -> Charge: -1
'6' @ 224-->-1, 315-->-1 -> Charge: -1
'8' @ 348-->-1, 424-->-1 -> Charge: -1
'B' @ 12-->-1, 30-->-1, 250-->-1, 356-->-1 -> Charge: -1
'G' @ 37-->-1, 174-->-1, 209-->-1, 345-->-1 -> Charge: -1
'H' @ 9-->-1, 17-->-1, 27-->-1 -> Charge: -1
'N' @ 65-->-1, 422-->-1 -> Charge: -1
'T' @ 108-->-1, 341-->-1, 361-->-1 -> Charge: -1
'U' @ 255-->-1, 369-->-1, 371-->-1 -> Charge: -1
'X' @ 239-->-1, 392-->-1 -> Charge: -1
'c' @ 94-->-1, 319-->-1, 452-->-1 -> Charge: -1
'd' @ 72-->-1, 305-->-1 -> Charge: -1
'e' @ 410-->-1 -> Charge: -1
'f' @ 81-->-1, 312-->-1 -> Charge: -1
'v' @ 68-->-1, 271-->-1, 301-->-1, 385-->-1 -> Charge: -1
'y' @ 53-->-1 -> Charge: -1
'z' @ 41-->-1, 178-->-1, 213-->-1, 436-->-1 -> Charge: -1

PASSWORD BYTE SIGN PATTERNS

```
=====  
BYTE 0 | ASCII: 'B' | Bit Pattern: 01000010  
Found at 10 location(s)  
SIGN PATTERN: -1 +1 -1 -1 -1 -1 +1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 1 | ASCII: 'v' | Bit Pattern: 01110110  
Found at 8 location(s)  
SIGN PATTERN: -1 +1 +1 +1 -1 +1 +1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 2 | ASCII: '3' | Bit Pattern: 00110011  
Found at 3 location(s)  
SIGN PATTERN: -1 -1 +1 +1 -1 -1 +1 +1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 3 | ASCII: 'H' | Bit Pattern: 01001000  
Found at 7 location(s)  
SIGN PATTERN: -1 +1 -1 -1 +1 -1 -1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 4 | ASCII: 'y' | Bit Pattern: 01111001  
Found at 6 location(s)  
SIGN PATTERN: -1 +1 +1 +1 +1 -1 -1 +1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 5 | ASCII: '8' | Bit Pattern: 00111000  
Found at 4 location(s)  
SIGN PATTERN: -1 -1 +1 +1 +1 -1 -1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 6 | ASCII: 'T' | Bit Pattern: 01010100  
Found at 7 location(s)  
SIGN PATTERN: -1 +1 -1 +1 -1 +1 -1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 7 | ASCII: 'z' | Bit Pattern: 01111010  
Found at 6 location(s)  
SIGN PATTERN: -1 +1 +1 +1 +1 -1 +1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 8 | ASCII: '1' | Bit Pattern: 00110001  
Found at 5 location(s)  
SIGN PATTERN: -1 -1 +1 +1 -1 -1 -1 +1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 9 | ASCII: 'U' | Bit Pattern: 01010101  
Found at 7 location(s)  
SIGN PATTERN: -1 +1 -1 +1 -1 +1 -1 +1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 10 | ASCII: 'c' | Bit Pattern: 01100011  
Found at 5 location(s)  
SIGN PATTERN: -1 +1 +1 -1 -1 -1 +1 +1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 11 | ASCII: '6' | Bit Pattern: 00110110  
Found at 3 location(s)  
SIGN PATTERN: -1 -1 +1 +1 -1 +1 +1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 12 | ASCII: 'G' | Bit Pattern: 01000111  
Found at 11 location(s)  
SIGN PATTERN: -1 +1 -1 -1 -1 +1 +1 +1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 13 | ASCII: 'd' | Bit Pattern: 01100100  
Found at 4 location(s)  
SIGN PATTERN: -1 +1 +1 -1 -1 +1 -1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 14 | ASCII: '0' | Bit Pattern: 00110000  
Found at 8 location(s)  
SIGN PATTERN: -1 -1 +1 +1 -1 -1 -1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 15 | ASCII: 'N' | Bit Pattern: 01001110  
Found at 5 location(s)  
SIGN PATTERN: -1 +1 -1 -1 +1 +1 +1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%  
  
BYTE 16 | ASCII: 'f' | Bit Pattern: 01100110  
Found at 4 location(s)  
SIGN PATTERN: -1 +1 +1 -1 -1 +1 +1 -1  
CONSISTENCY: 100.0%  
BIT-SIGN MATCH: 100.0%
```

BYTE 17 | ASCII: '4' | Bit Pattern: 00110100

Found at 6 location(s)

SIGN PATTERN: -1 -1 +1 +1 -1 +1 -1 -1

CONSISTENCY: 100.0%

BIT-SIGN MATCH: 100.0%

BYTE 18 | ASCII: 'X' | Bit Pattern: 01011000

Found at 10 location(s)

SIGN PATTERN: -1 +1 -1 +1 +1 -1 -1 -1

CONSISTENCY: 100.0%

BIT-SIGN MATCH: 100.0%

BYTE 19 | ASCII: 'e' | Bit Pattern: 01100101

Found at 7 location(s)

SIGN PATTERN: -1 +1 +1 -1 -1 +1 -1 +1

CONSISTENCY: 100.0%

BIT-SIGN MATCH: 100.0%

=====