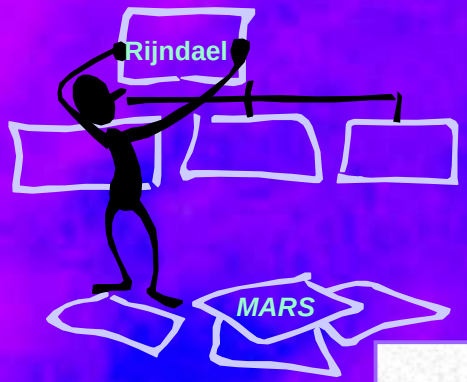
The World's Fastest Hardware Cipher

IBM Japan Ltd.
Tokyo Research Laboratory
A.Satoh S.Morioka

Hard Standardization Work



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AES

Advanced Encryption Standard

Draft FIPS for the AES

On February 28, 2001, NIST announced that a Draft Federal Information Processing Standard (FIPS) for the AES is available for public review and comment.

NESSIE

New European Schemes for Signatures, Integrity, and Encryption

IST-1999-12324

NESSIE is a project within the Information Societies Technology (IST) Programme of the European Commission (Key Action II, Action Line II.4.1).

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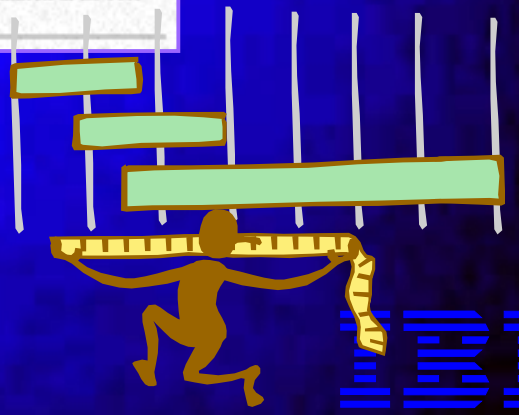
IPA ISEC The Information-technology Security Center セキュリティセンター

暗号技術の評価事業について

- 量子暗号に関する調査・研究報告書
- 次世代認証方式の研究・開発動向の調査報告書
- 欧州における暗号政策および暗号評価機関に関する調査報告
- 平成12年度暗号技術報告書について
- 暗号技術の詳細評価について
- 暗号技術の公募について
- 暗号技術の評価について



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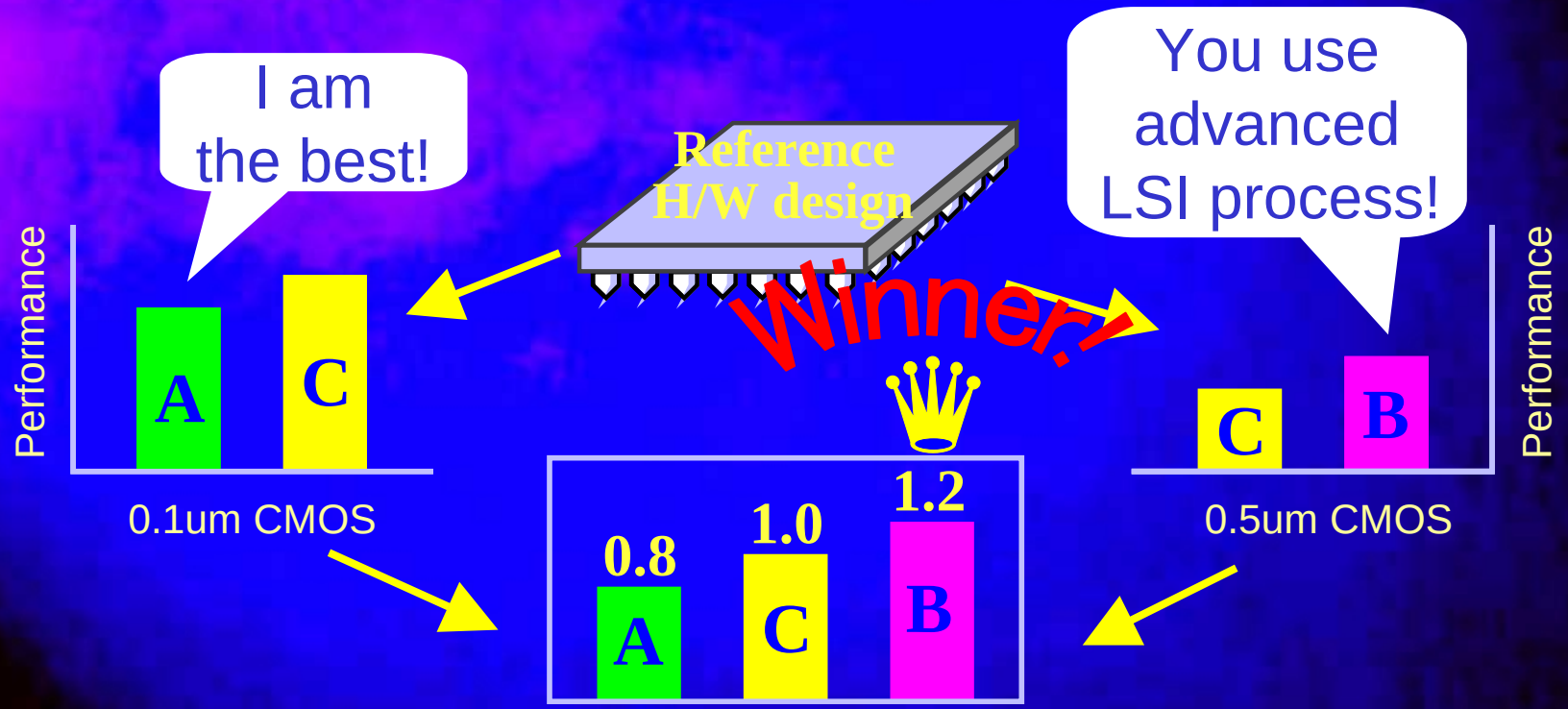
Hard Hardware Comparison

- Hard to decide superiority of algorithms using H/W implemented by different ASIC libraries



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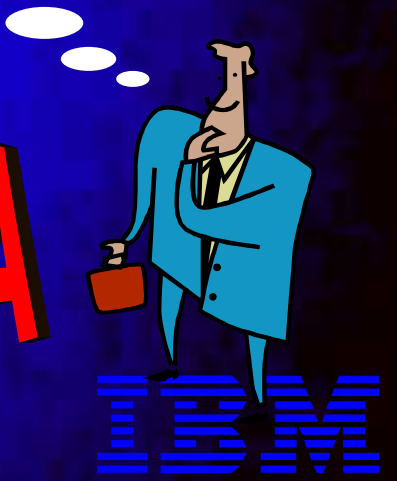
Best Reference Algorithm

- DES can be the good reference
- High-performance DES H/W design is not free

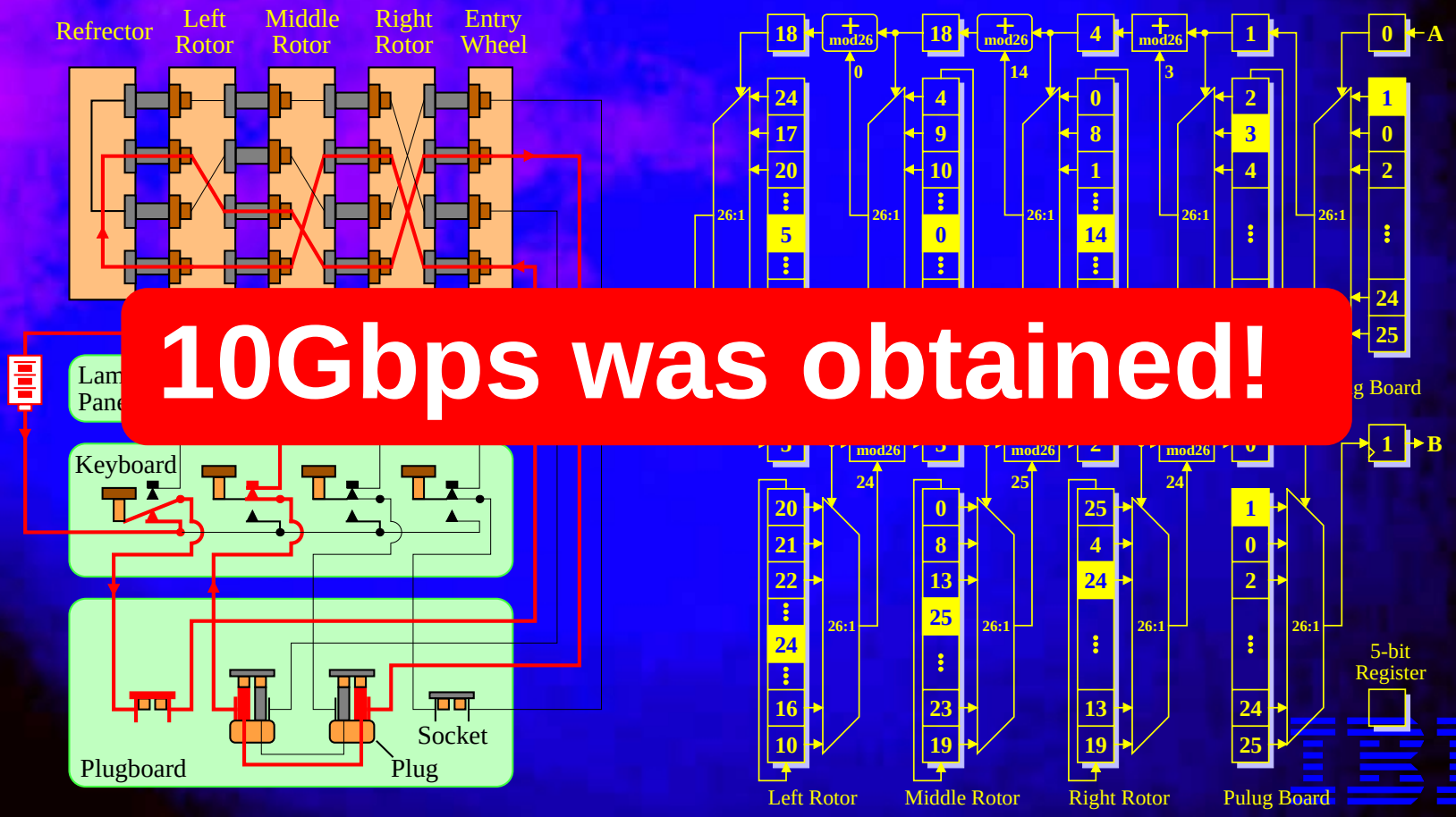
- Widely used
- High performance in H/W
- H/W design can be free

ENIGMA



H/W Emulation H/W

- Rotors are emulated by shift registers
- Rotors and plug-board wirings are defined as tables

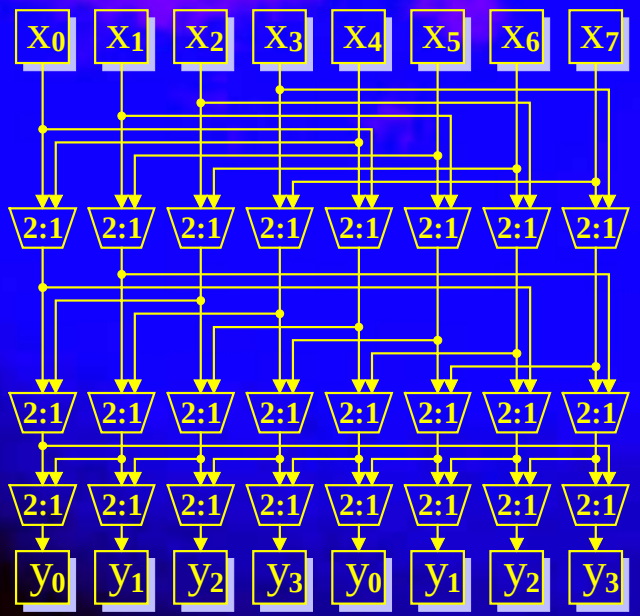


10Gbps was obtained!

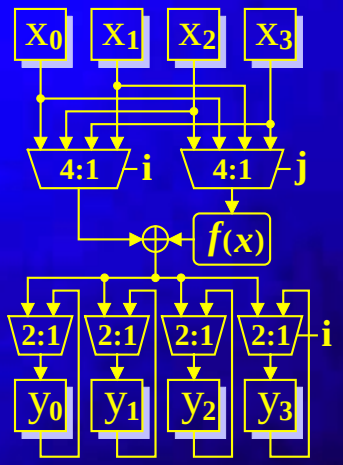
Wires are Weird

- Wires have no function, but
- Wires consume large power dissipation
- Wires spend lot of delay time
- Wires are here, there, everywhere…

```
y = x << n;
```




```
for (i = 0; i < 3 i++) {
    j = i + 1 % 4;
    y(i) = x(j) ^ f(x(i));
}
```



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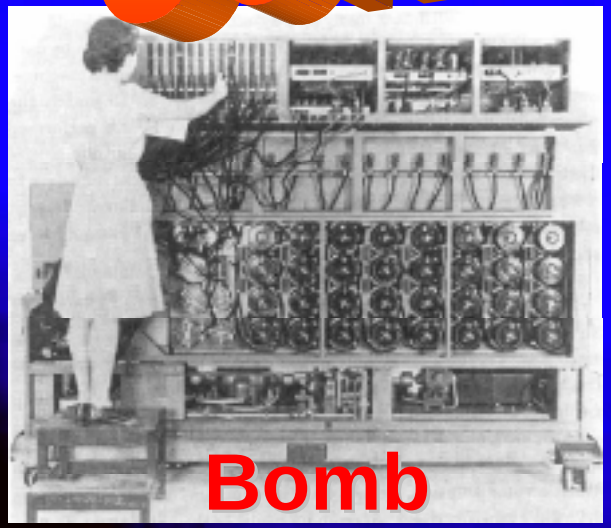
Access Now !

Enigma H/W code is absolutely free!

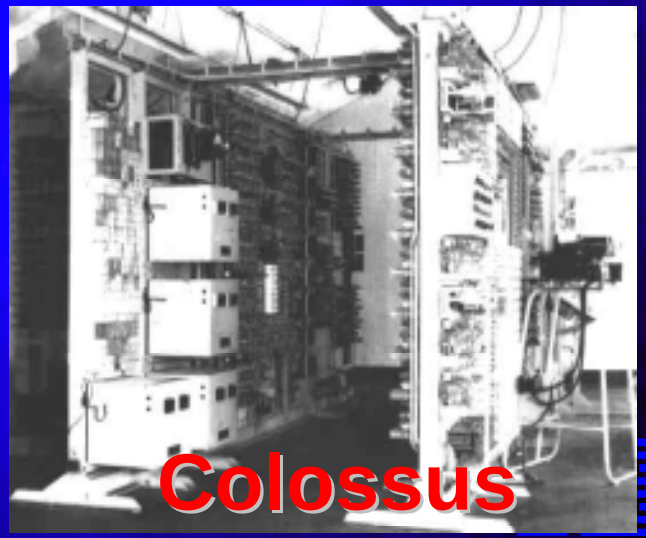
http://www02.so-net.jp/~morioka/enigma.htm

Coming Soon!



Bomb

and



Colossus

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