

“Digital postal mark” sizes
stated by Pintsov and Vanstone:

160-bit message,
1024-bit RSA key,
two 1024-bit signatures:
total 3232 bits.

Or 160-bit message,
160-bit elliptic-curve key,
two 320-bit signatures
(assuming point compression):
total 960 bits.

Other elliptic-curve options.

RSA/Rabin key compression

(2003 Coppersmith,
improving on well-known 1/2)

Compress keys to 1/3 size.

Slows down key generation.

Doesn't affect speed of
signing and verification.

Security: conjecturally unchanged;
provably within a few bits.

RSA/Rabin signature compression

(2003 Bleichenbacher,
improving verification speed
compared to previous results)

Compress signatures to
 $2/3$ size for RSA or
 $1/2$ size for Rabin.

Slows down verification somewhat.
No other effects on speed.

Security: provably unchanged.

Rabin signed-message compression

(2004 Gentry, improving on previous “message recovery” results)

Compress signed message to $\frac{2}{3}$ of original key size if message is short.

Better than signature compression if message is longer than $\frac{1}{6}$.

Slows down verification somewhat.

Security: conjecturally unchanged; similar generic-attack reduction.

The bottom line

160-bit message,
696-bit signed Rabin key
(the key being 344 bits),
one 520-bit signature:
total only 1376 bits.

“A state-of-the-art
public-key signature system,”
<http://cr.yp.to/signs.html>:
Coppersmith details,
Bleichenbacher details,
better key sizes, etc.