Coded Memory Design #2

Code Region I

Code Region II

| A | B | C | D |

a1 a2 | b1 b2 | c1 c2 | d1 d2

| E | F | G | H |

e1 e2 | f1 f2 | g1 g2 | h1 h2

a1+b1 c1+d1 a1+d1 b1+c1 b1+d1
e1+e2 f1+f2 g1+g2 h1+h2 a1+c1
a2+b2 c2+d2 a2+d2 b2+c2 b2+d2
e1   f1   g1   h1   a2+c2

e1+f1 g1+h1 e1+h1 f1+g1 f1+h1
a1+b1 c1+d1 a1+d1 b1+c1 e1+g1
e2+f2 g2+h2 e2+h2 f2+g2 f2+h2
a1   b1   c1   d1   e2+g2

Data Banks

Parity Banks

Fraction of coded region per bank = α

Total overhead = $\dfrac{10 \times 2\,\alpha}{8}$ **= 2.5 α**

Can serve any 5 read requests (in worst case) to one region.