- single ranked
- 8GB - 8Gb chips
- PC4-25600
- 1KB page size
- 16 outstanding requests
- x8 devices

Memory organization:

$8Gb \cdot \frac{1B}{8b} = 1GB$ X = words

$X \cdot 2^3 = 2^{30}$

$X = \frac{2^{30}}{2^3} = 2^{27}$ or 128M

128M x 8 chips

2^{27} words = 27 address bits

Columns:

C = columns

page size $= \frac{C \cdot 2^3}{2^3} = 1KB$

$C = 1KB = 2^{10}$

2^{10} columns = 10 column bits

Rows:

r = row bits

$2^r \cdot 2^{10} = 2^{27}$

$r = 17$

2^{17} rows = **17 row bits**

Banks & Bank Groups:

X8 devices have 4 bank groups of 4 banks

so, **2 bank bits**
2 bank group bits

Diagram: