<u>Adders</u>

Full-adder cell (FA) revisited:



Adders (cont.)

1. Subtractors: A - B = A + (-B)





2. Ripple Adder



Ripple adder is inherently slow because, in general s7 must wait for c7 which must wait for c6 ...

T proportional to *n*, Cost proportional to *n*

How do we make it faster, perhaps with more cost?Spring 2000EECS150Page 2

3. Carry Select Adder



 $T = T_ripple / 2$

COST = 1.5 * COST_ripple

In general:

EECS150

16-bit Carry Select Adder



Spring 2000

EECS150