*Basic ripple-carry structure*

x[width-1]

y[width-1]

y[1]

x[1]

y[0]

x[0]

. . . .

cout

FA

FA

cin

FA

sum[1]

sum[width-1]

sum[0]

carry[i+1]

*Resulting circuit*

*Pattern described with “for generate”*

cout

cin

. . . . . . . .

carry[width]

sum[width-1]

x[width-1]

FA

y[width-1]

sum[0]

carry[1]

carry[0]

y[0]

x[0]

FA

carry[i]

y[i]

sum[i]

x[i]

FA