

COL215L: Digital Logic & System Design

Lecture 14: Binary Arithmetic (Cont.)

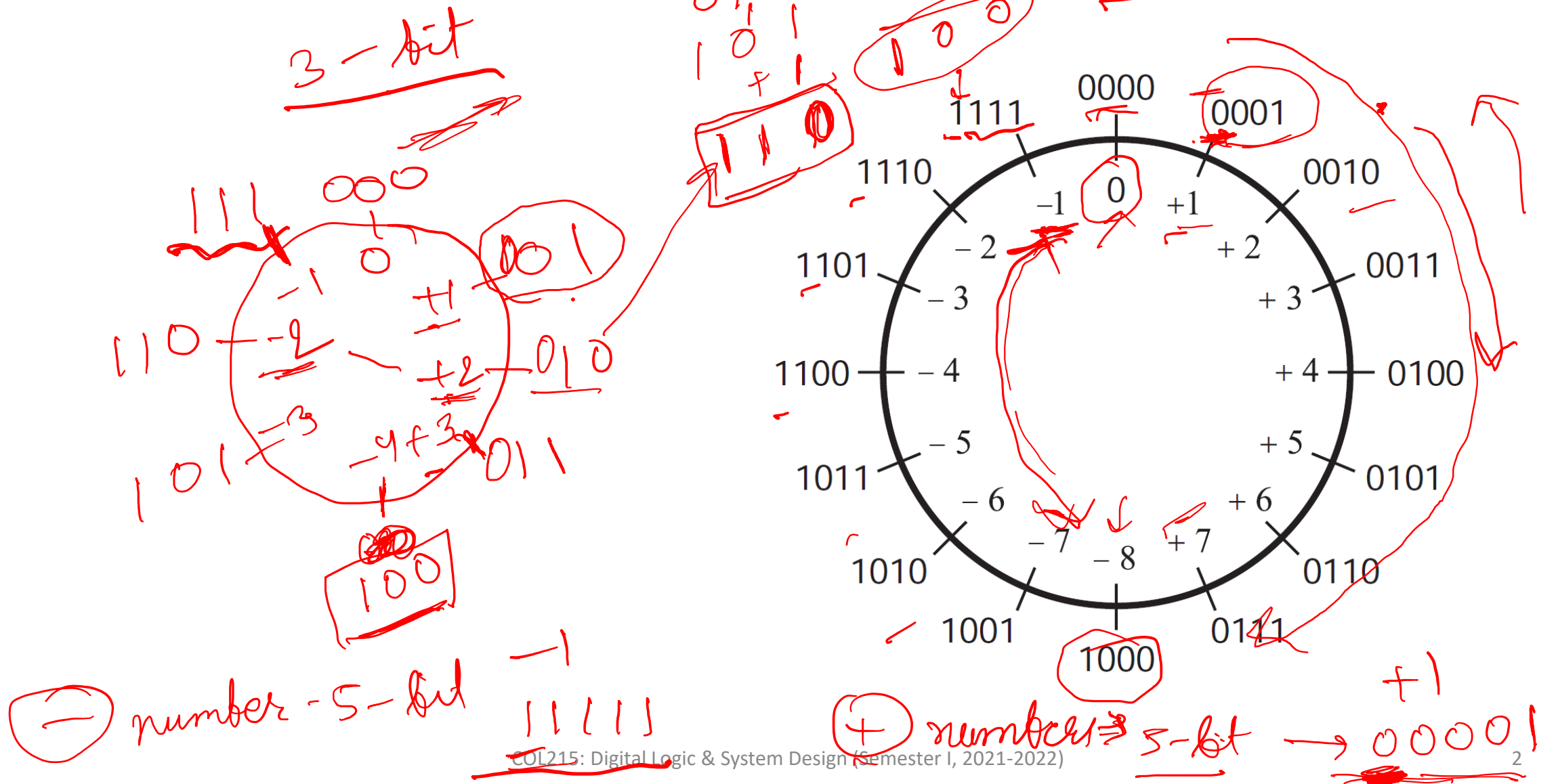


M. Balakrishnan
CSE@IITD

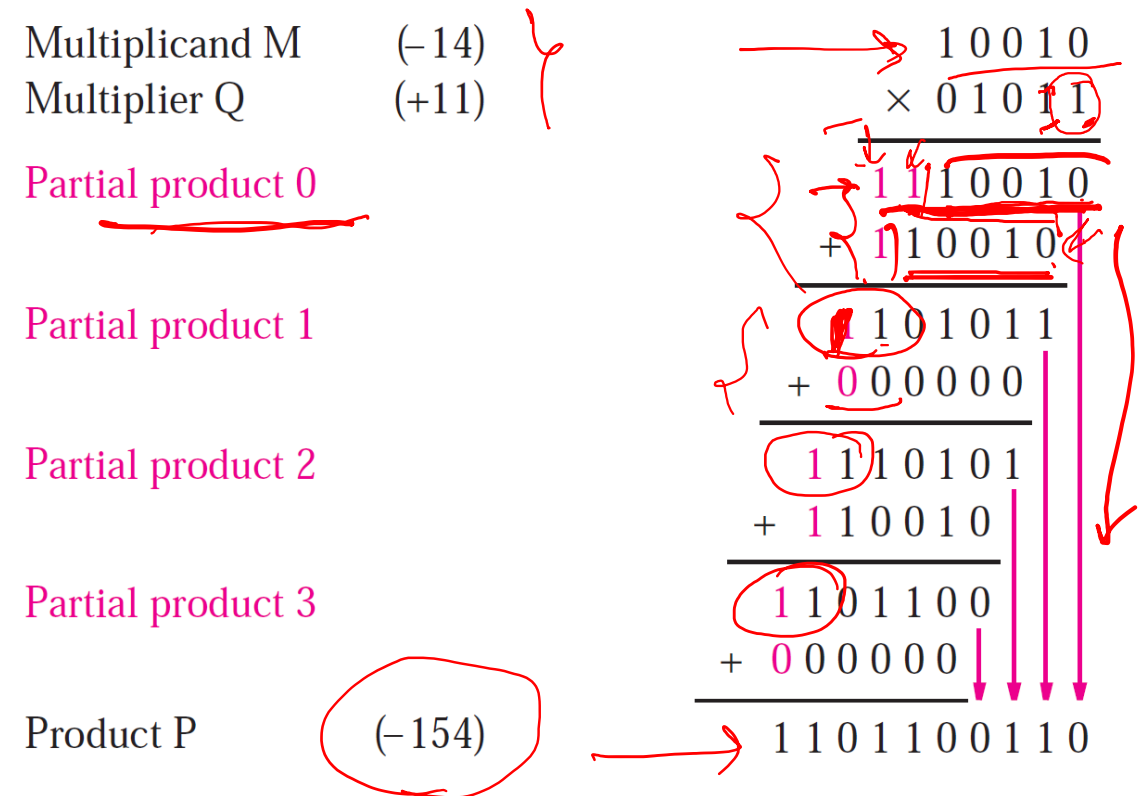
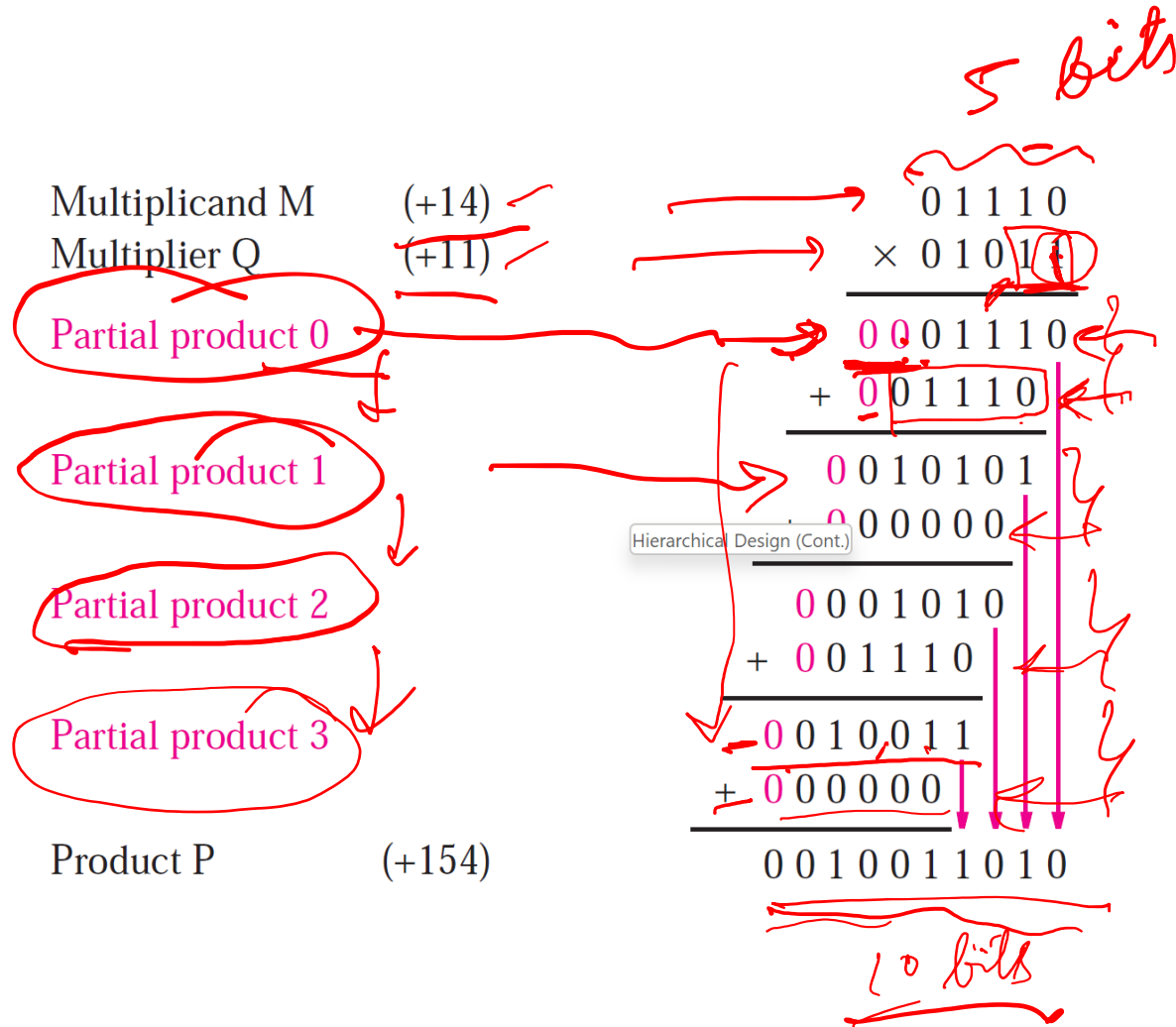
September 8, 2021

Vireshwar Kumar
CSE@IITD

Sign Extension



Multiplication of Signed Integers



Division

$$\begin{array}{r}
 15 \\
 \hline
 9 \overline{) 140} \\
 \underline{-9} \\
 50 \\
 \underline{-45} \\
 5
 \end{array}$$

unsigned

$$\begin{array}{r}
 00001111 \leftarrow Q \\
 \hline
 B \rightarrow 1001 \overline{) 10001100} \leftarrow A \\
 \underline{1001} \\
 10001 \\
 \underline{1001} \\
 1001 \\
 \underline{10000} \\
 1001 \\
 \hline
 1110 \\
 \underline{1001} \\
 101 \leftarrow R
 \end{array}$$

$$\begin{array}{r}
 100 \\
 -4 \div 2 = 110 \\
 \underline{-2}
 \end{array}$$

Comparator

