HAMMING_GENERATORMATRIX.VI*

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	This module refers to LabVIEW, a software development environment that features a graphical programming language. Please see the LabVIEW QuickStart Guide[1] module for tutorials and documentation that will help you:
	• Apply LabVIEW to Audio Signal Processing
	• Get started with LabVIEW
	• Obtain a fully-functional evaluation edition of LabVIEW

Table 1

NOTE: Visit LabVIEW Setup[2] to learn how to adjust your own LabVIEW environment to match the settings used by the LabVIEW screencast video(s) in this module. Click the "Fullscreen" button at the lower right corner of the video player if the video does not fit properly within your browser window.

1 LabVIEW SubVI: hamming_HammingCodeParamters.vi

- **Description:** Create the generator matrix (G matrix) for the (n,k) Hamming linear block code, as well as the parity matrix (P matrix), given the number of checkbits "q" and the message length "k".
- **Category:** Hamming (n,k) block code ("hamming" prefix)

2 Inputs (Controls)

1. `q, checkbits (3)` – I32
2. `k, message length (4)` – I32

Parentheses ( ) indicate default value; square brackets [ ] designate units.

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[1]"NI LabVIEW Getting Started FAQ" <http://cnx.org/content/m15428/latest/>
[2]"LabVIEW Setup for "Communication Systems Projects with LabVIEW"" <http://cnx.org/content/m17319/latest/>

3 Outputs (Indicators)

1. `G matrix, k by n` – Real Matrix
2. `P matrix, k by q` – Real Matrix

4 Required Behavior

1. "P" is a k by q matrix of q-bit words containing two or more 1s arranged in any order (or, equivalently, the minimum Hamming weight of each row of the "P" matrix is 2).
2. "G" is defined as [I | P], where I is the k by k identity matrix.

5 LabVIEW Coding Tips

View the screencast video in Create a SubVI in LabVIEW[3] to learn the mechanics of subVIs.

Refer to the Figure 1 screencast video for LabVIEW coding tips and techniques specific to this subVI.

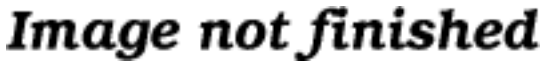

Figure 1: [video] LabVIEW coding tips and techniques for hamming_GeneratorMatrix.vi

[3] "Create a SubVI in LabVIEW" <http://cnx.org/content/m14767/latest/>