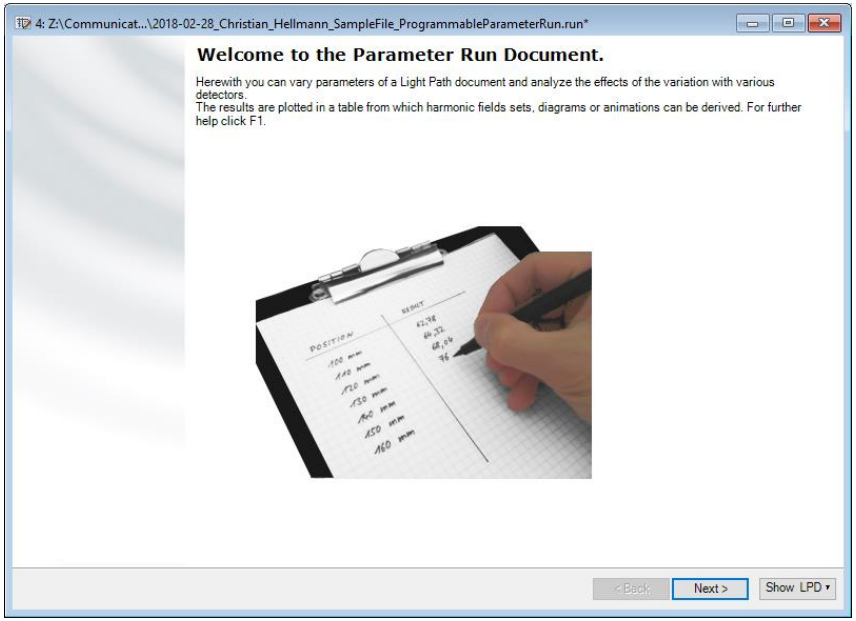
Application of the Programmable Mode of a Parameter Run

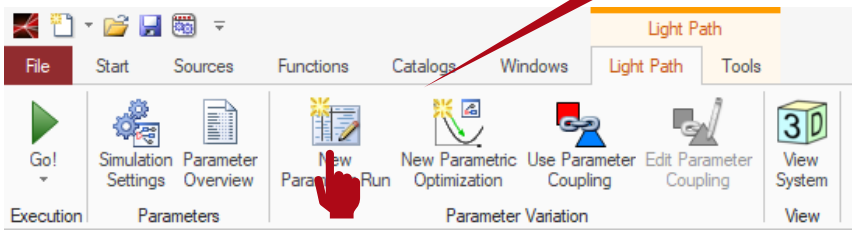
Abstract

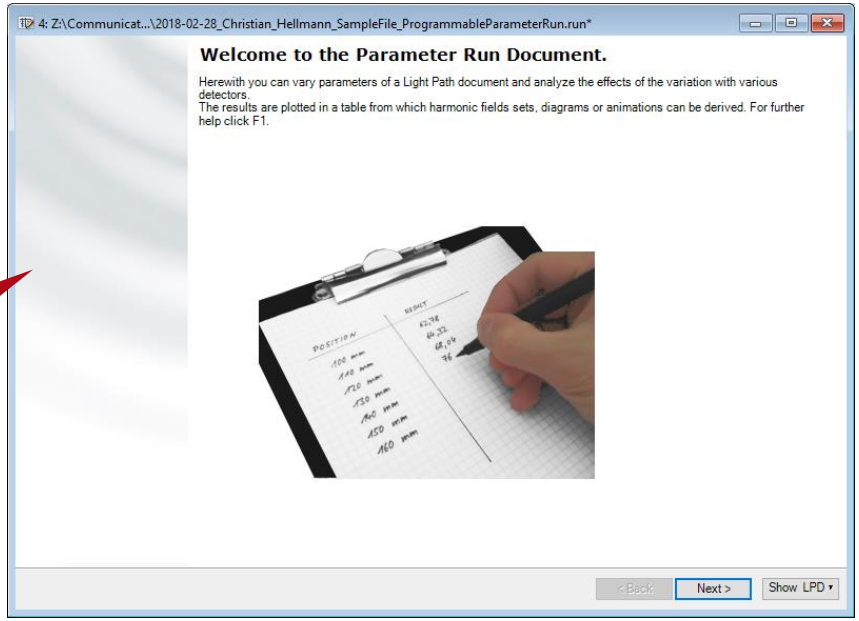


Systematical variations of parameters are substantial for detailed investigations of complex optical systems. VirtualLab Fusion enables the variation of parameters by the so-called parameter run feature. By using the parameter run, such variations can be configured arbitrarily, depending on the demands of the task of analysis. Further, the special programmable mode allows a free configuration in order to provide fully customizable parameter variations. In an example, the application of this programmable mode is presented.

Initialization of a Parameter Run

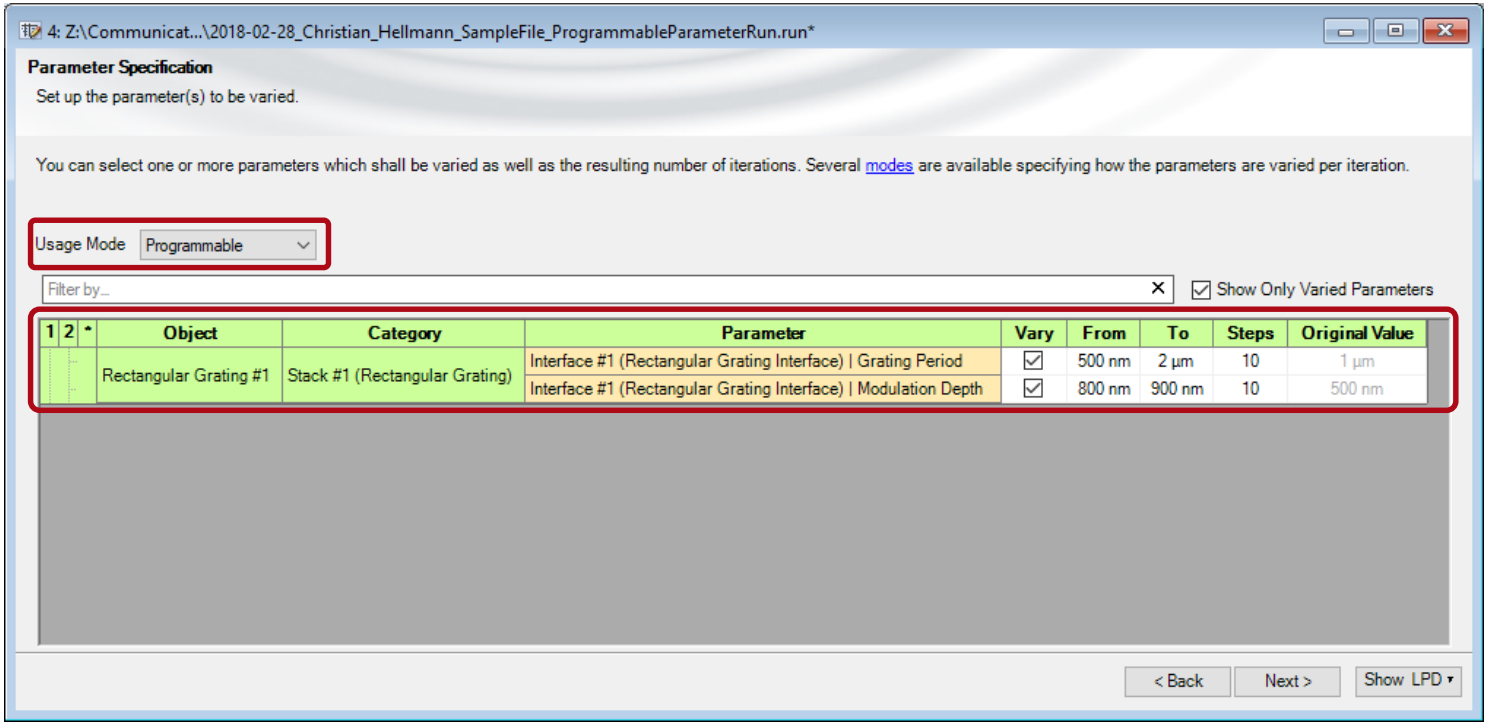
- Variations of parameters can be done by using the parameter run feature.





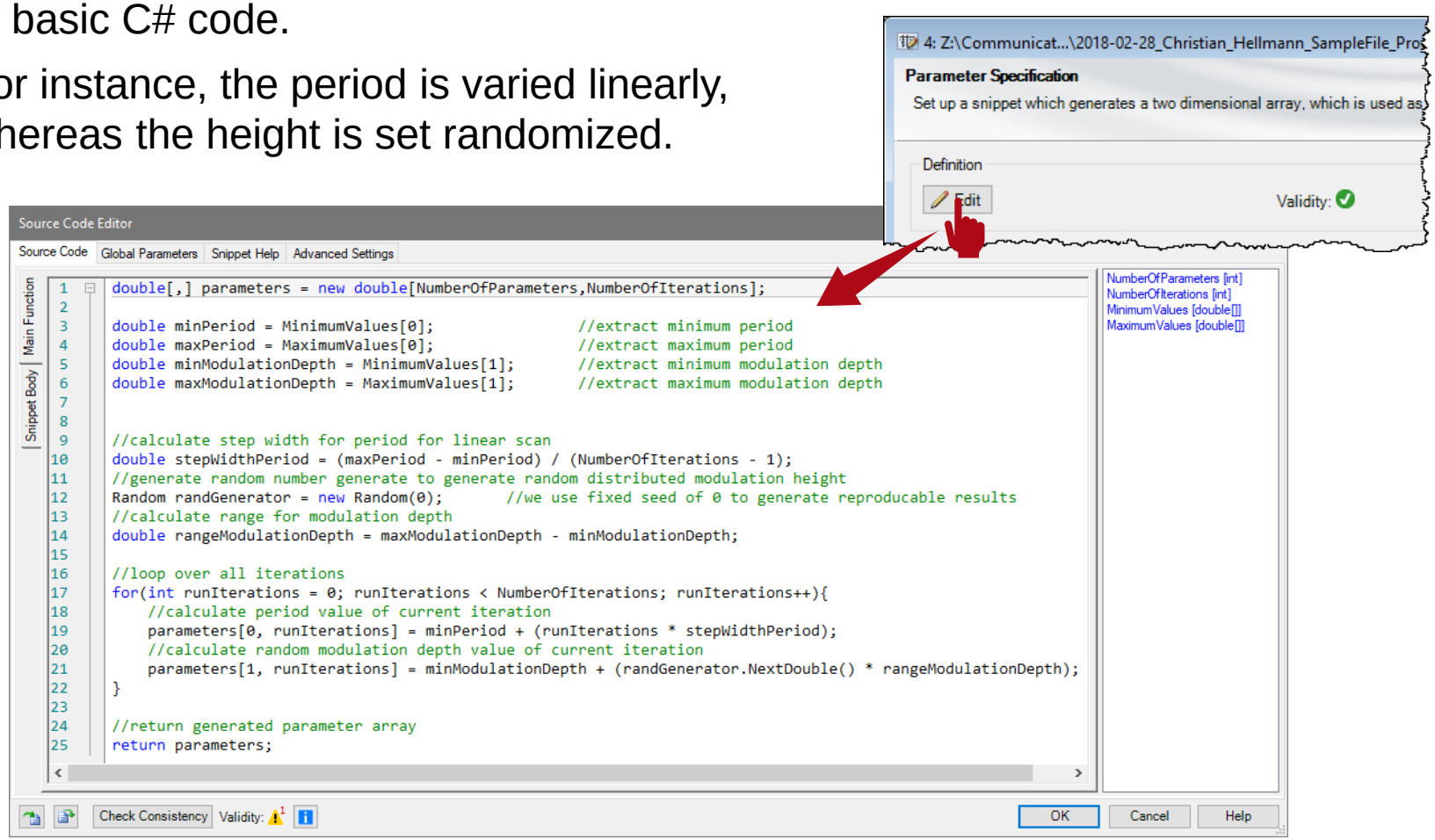
Selection of Parameters and Range of Variation

- On the second page, the mode of the parameter run has to be chosen.
- In the table below, the desired parameter for variation can be selected, as well as the corresponding range and number of variation steps.
- In this example, the period and the height of a rectangular grating are varied.



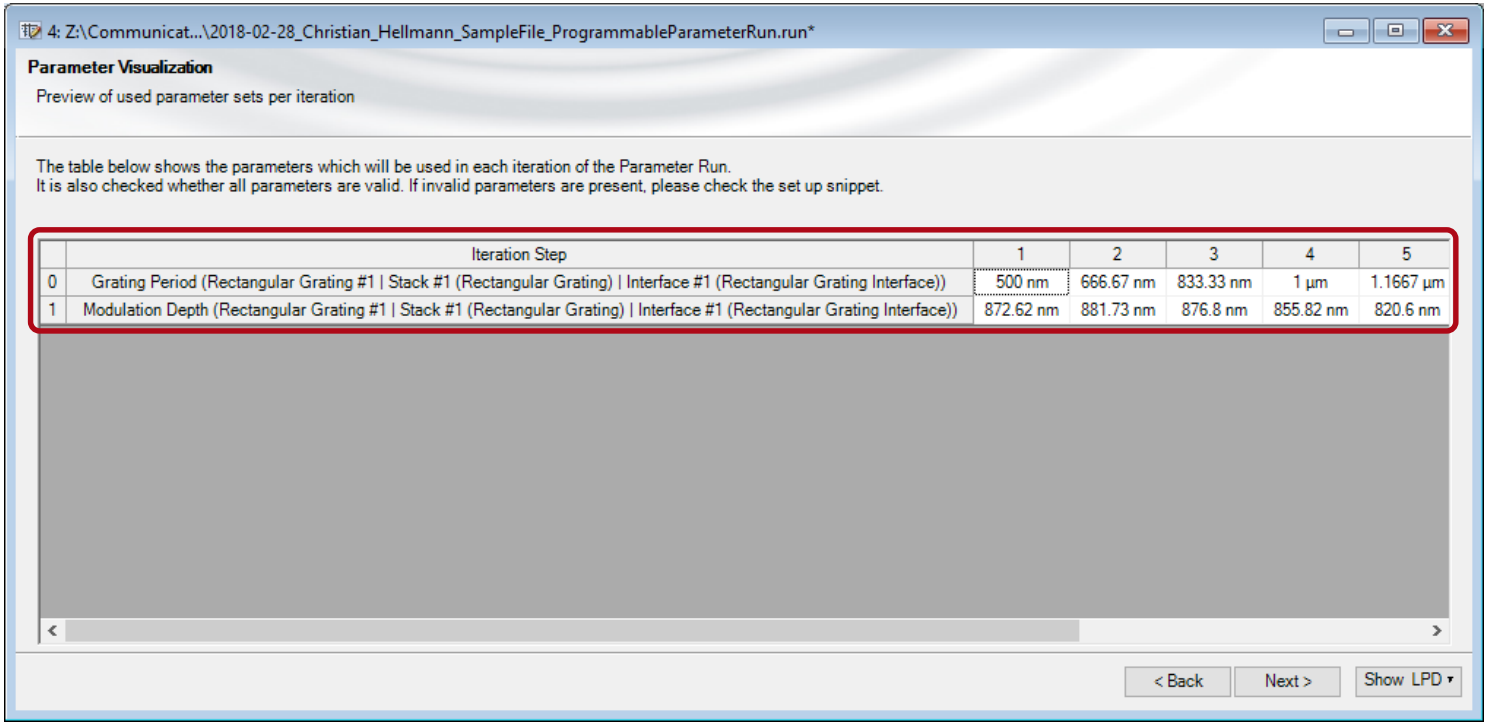
Customization of the Parameter Run

- Next, the variation of the chosen parameters can be configured with the help of basic C# code.
- For instance, the period is varied linearly, whereas the height is set randomized.



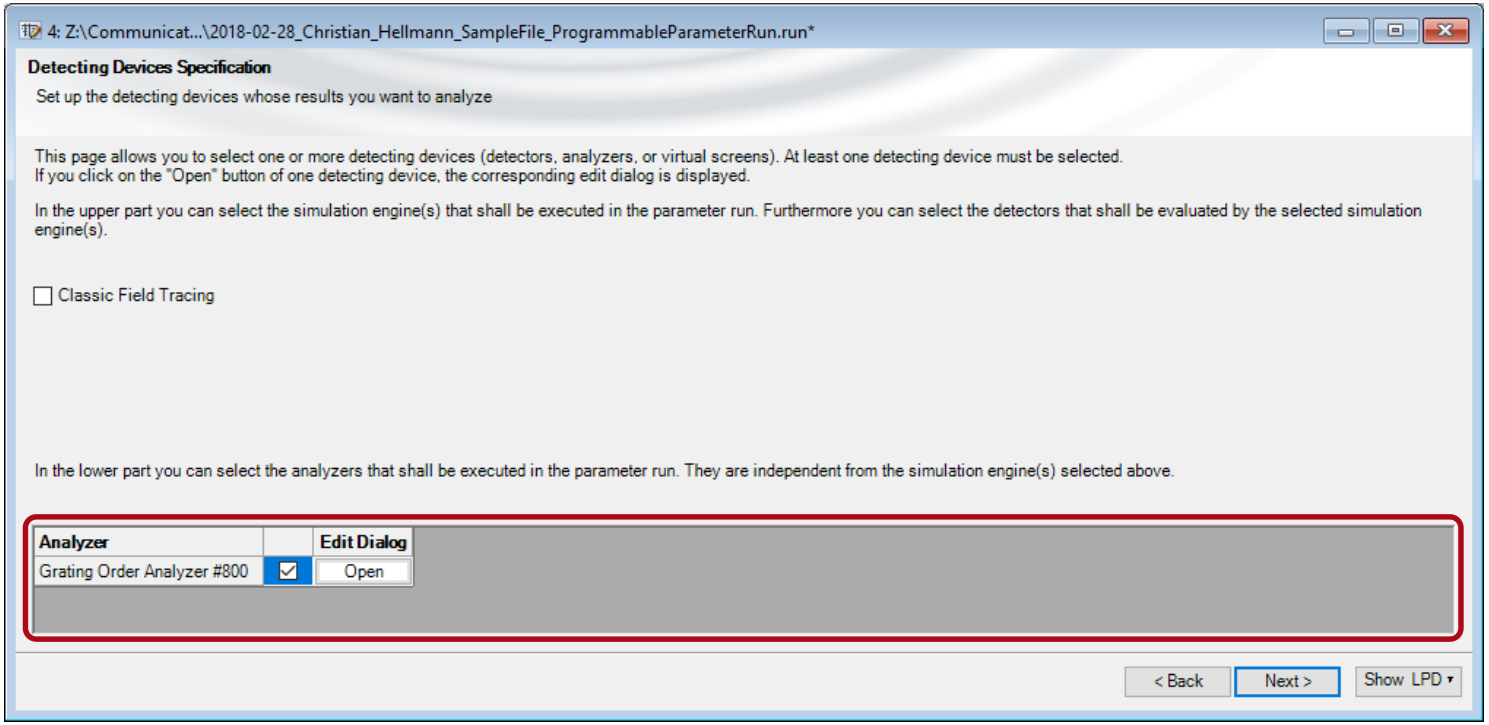
Customization of the Parameter Run

- On the next page, the configured iterations of the parameter run are exhibited.



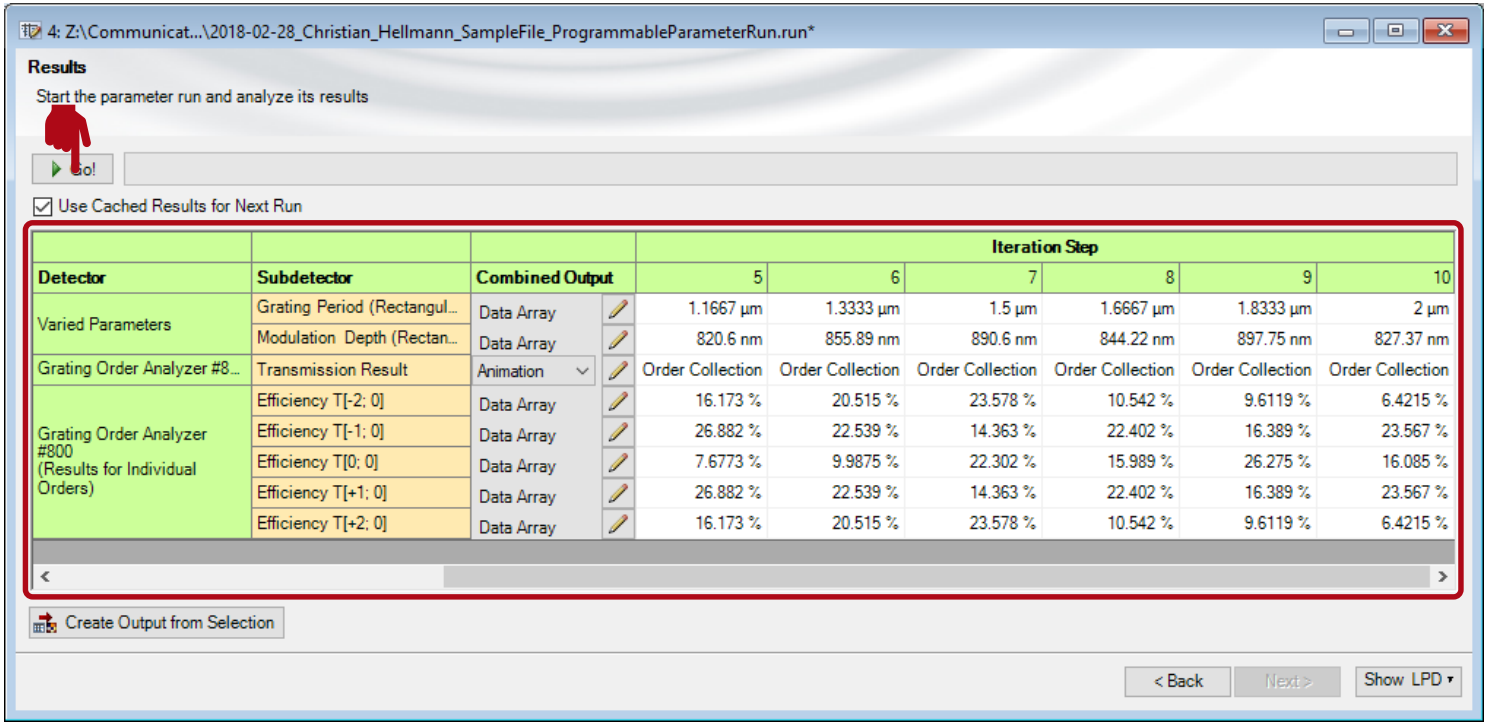
Set up of the Parameter Run

- Next, as for all modes of the Parameter Run, the desired simulation engine and/or analyzer has to be selected.
- In this example, just the *Grating Order Analyzer* is used.



Set up of the Parameter Run

- Then click Go to start the calculation.
- After the calculation has finished, all results are presented in the table below.



Detector	Subdetector	Combined Output	Iteration Step 5	6	7	8	9	10
Varied Parameters	Grating Period (Rectangul...	Data Array	1.1667 µm	1.3333 µm	1.5 µm	1.6667 µm	1.8333 µm	2 µm
	Modulation Depth (Rectan...	Data Array	820.6 nm	855.89 nm	890.6 nm	844.22 nm	897.75 nm	827.37 nm
Grating Order Analyzer #8...	Transmission Result	Animation	Order Collection	Order Collection	Order Collection	Order Collection	Order Collection	Order Collection
Grating Order Analyzer #800 (Results for Individual Orders)	Efficiency T[-2; 0]	Data Array	16.173 %	20.515 %	23.578 %	10.542 %	9.6119 %	6.4215 %
	Efficiency T[-1; 0]	Data Array	26.882 %	22.539 %	14.363 %	22.402 %	16.389 %	23.567 %
	Efficiency T[0; 0]	Data Array	7.6773 %	9.9875 %	22.302 %	15.989 %	26.275 %	16.085 %
	Efficiency T[+1; 0]	Data Array	26.882 %	22.539 %	14.363 %	22.402 %	16.389 %	23.567 %
	Efficiency T[+2; 0]	Data Array	16.173 %	20.515 %	23.578 %	10.542 %	9.6119 %	6.4215 %

Document Information

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