Georgios Zacharopoulos

Laura Pozzi

ClrFreqCFGPrinter :

A TOOL FOR FREQUENCY-ANNOTATED CONTROL FLOW GRAPH GENERATION

EuroLLVM 2017

Mar 28, 2017
Saarbrücken,
Germany

Università della Svizzera italiana (USI Lugano),
Faculty of Informatics

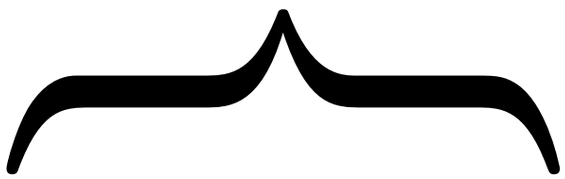
PROFILING

LLVM profdata

LLVM Analysis Pass

PROFILING

LLVM profdata



LLVM Analysis Pass

LLVM-PROFDATA TOOL

PROFILING

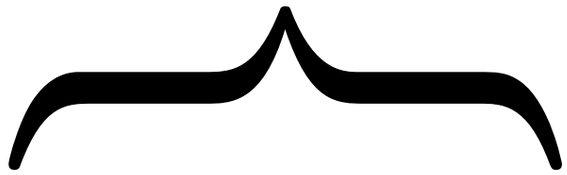
LLVM profdata

LLVM Analysis Pass

PROFILING

LLVM profdata

LLVM Analysis Pass



BB FREQUENCY INFO ANALYSIS METHODS

PROFILING

LLVM profdata

LLVM Analysis Pass

PROFILING

LLVM profdata

LLVM Analysis Pass

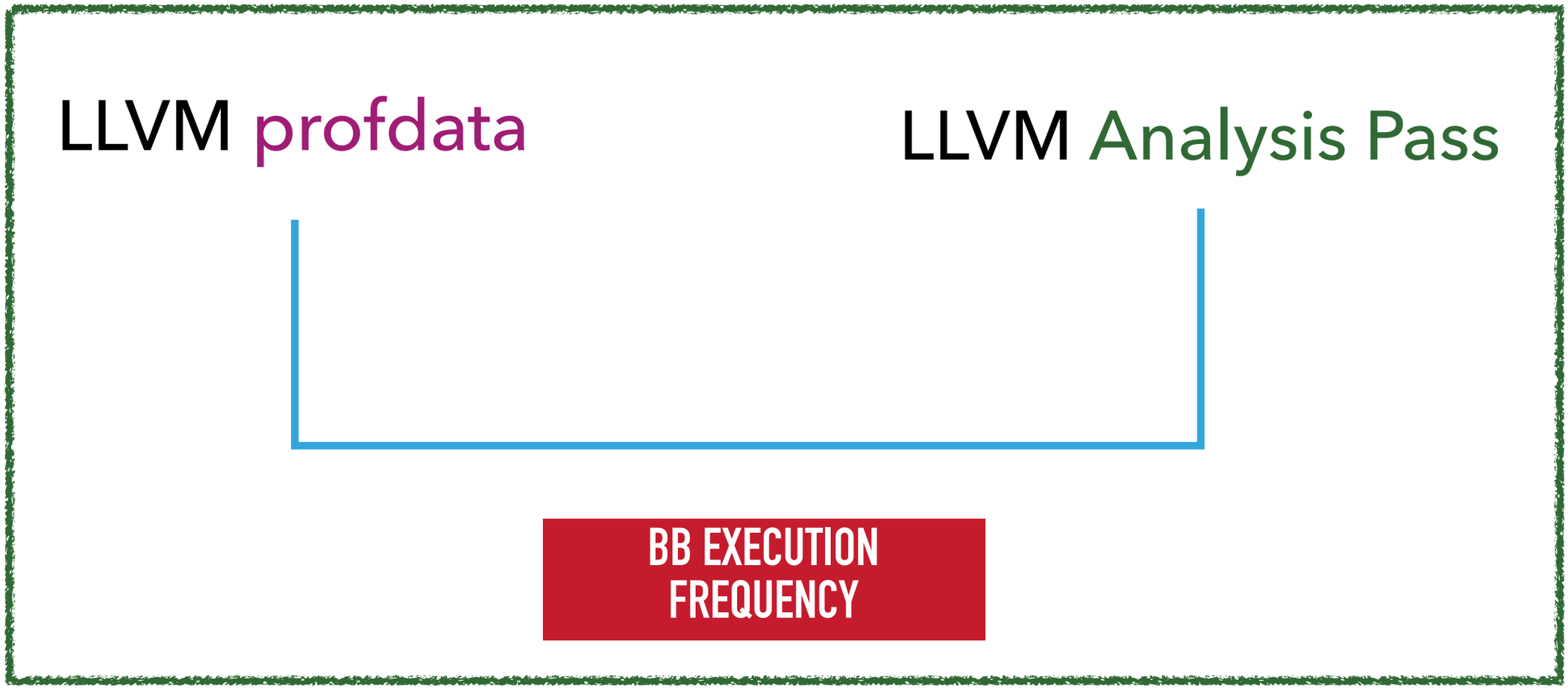
PROFILING

LLVM profdata

LLVM Analysis Pass

BB EXECUTION FREQUENCY

PROFILING

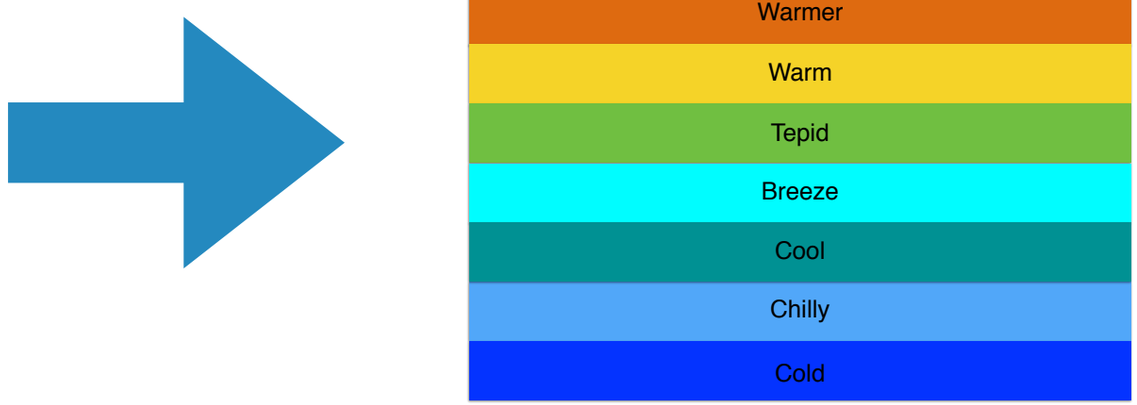

LLVM profdata
LLVM Analysis Pass
BB EXECUTION FREQUENCY
TOOL WE DEVELOPED

PROFILING

LLVM profdata

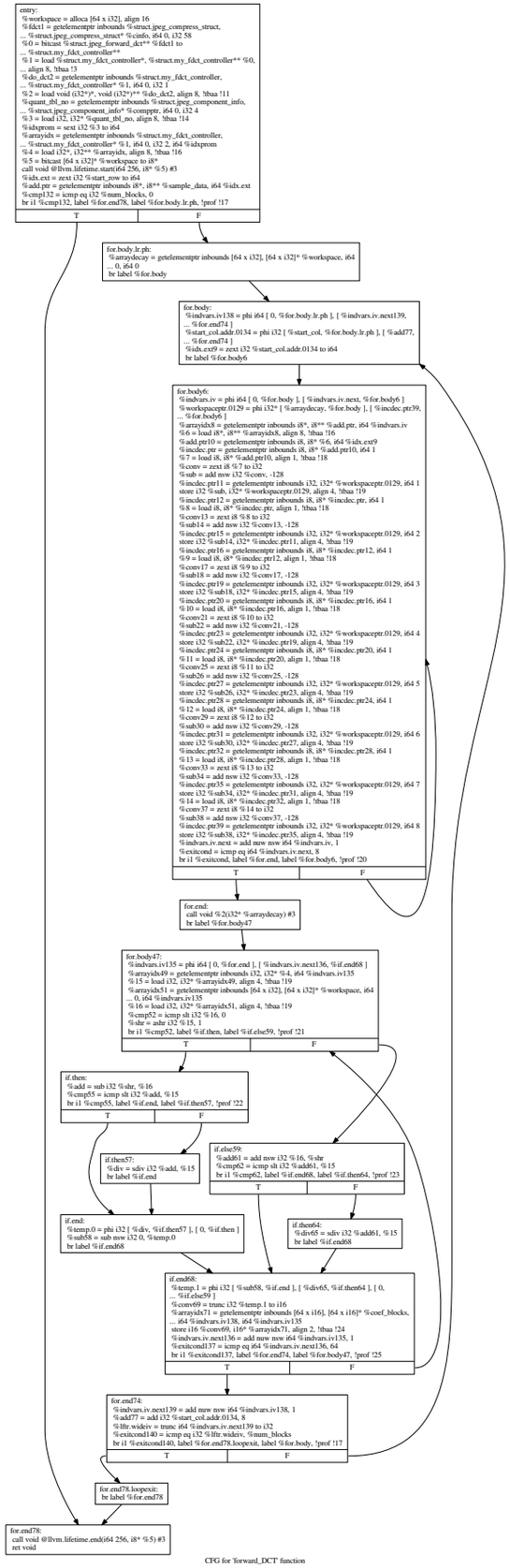
LLVM Analysis Pass

BB EXECUTION FREQUENCY



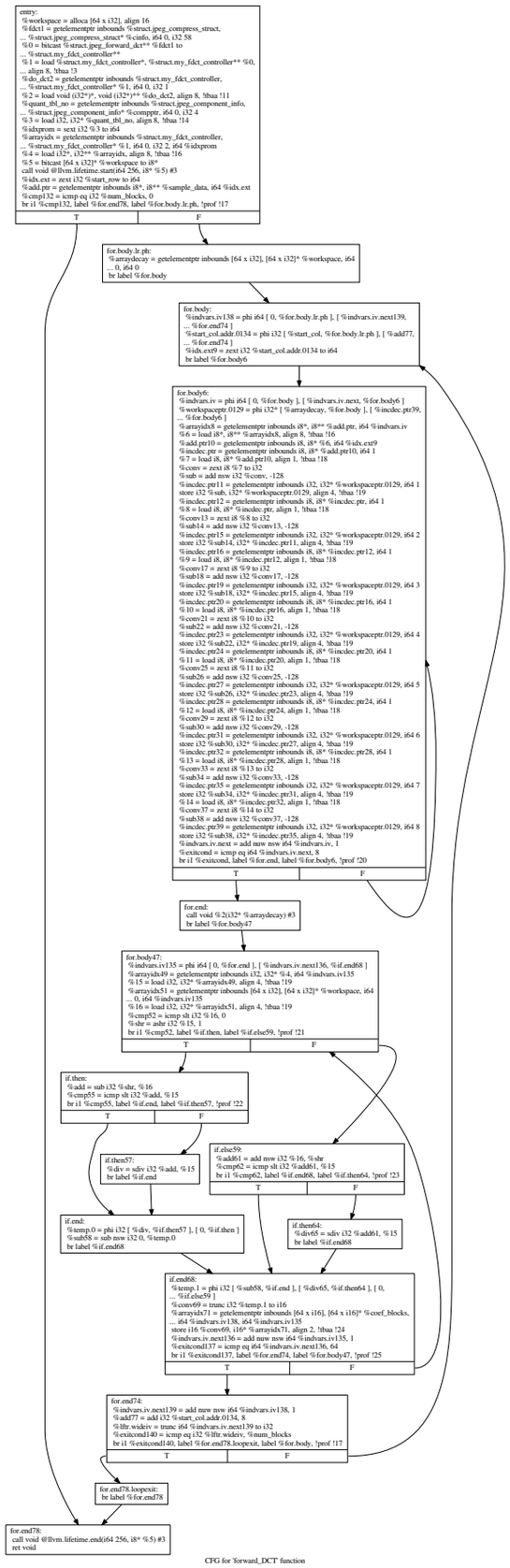
COLOUR DISTRIBUTION IN THE CFG

EXAMPLE



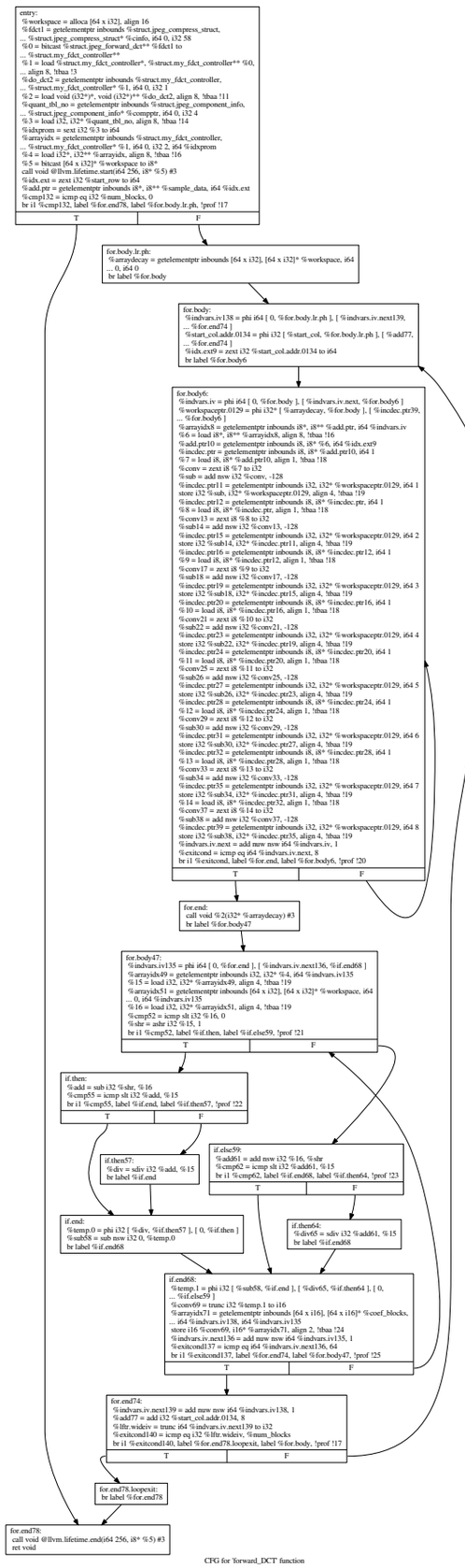
CFG for 'forward_DCT' function

EXAMPLE



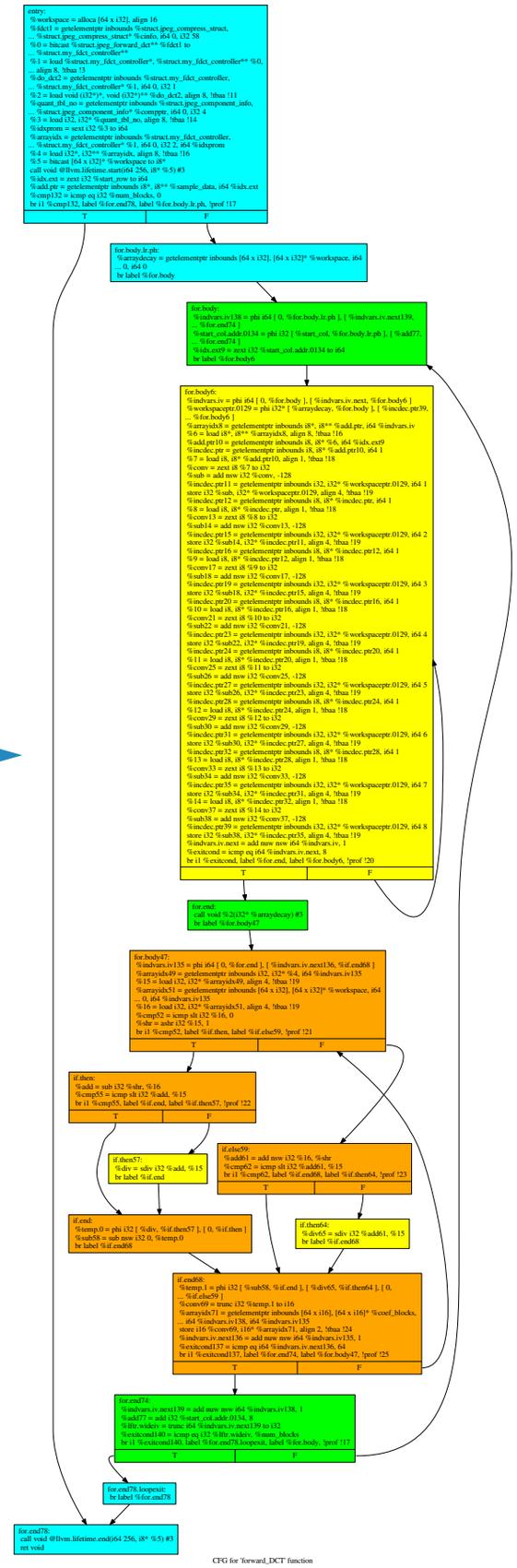
CFG for 'forward_DCT' function

EXAMPLE



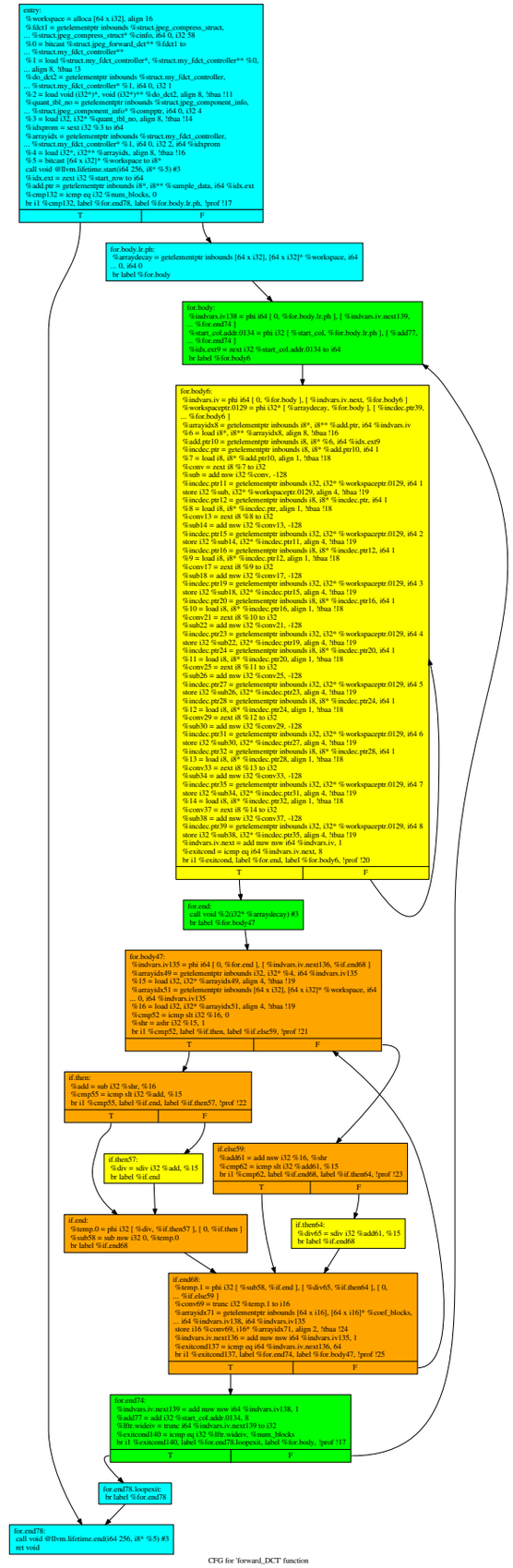
CFG for 'forward_DCT' function

ClrFreqCFGPrinter



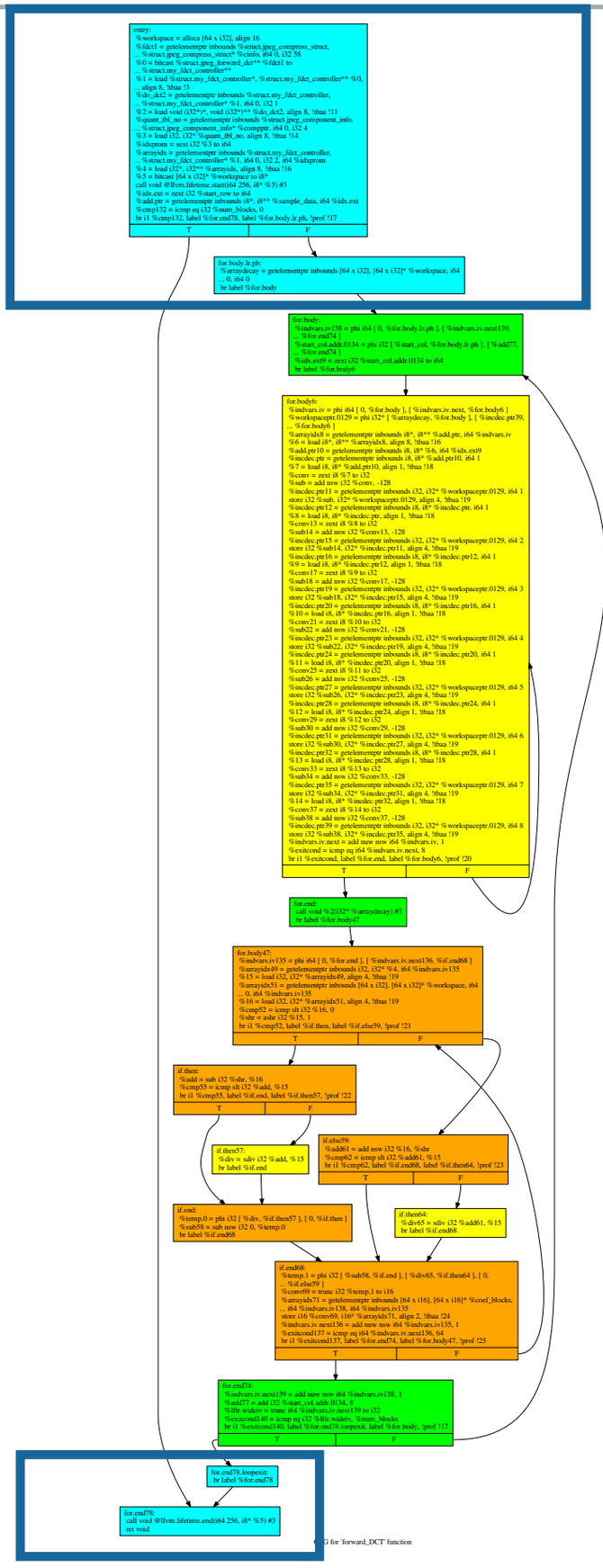
CFG for 'forward_DCT' function

Coldest Regions of an application



CFG for 'forward_DCT' function

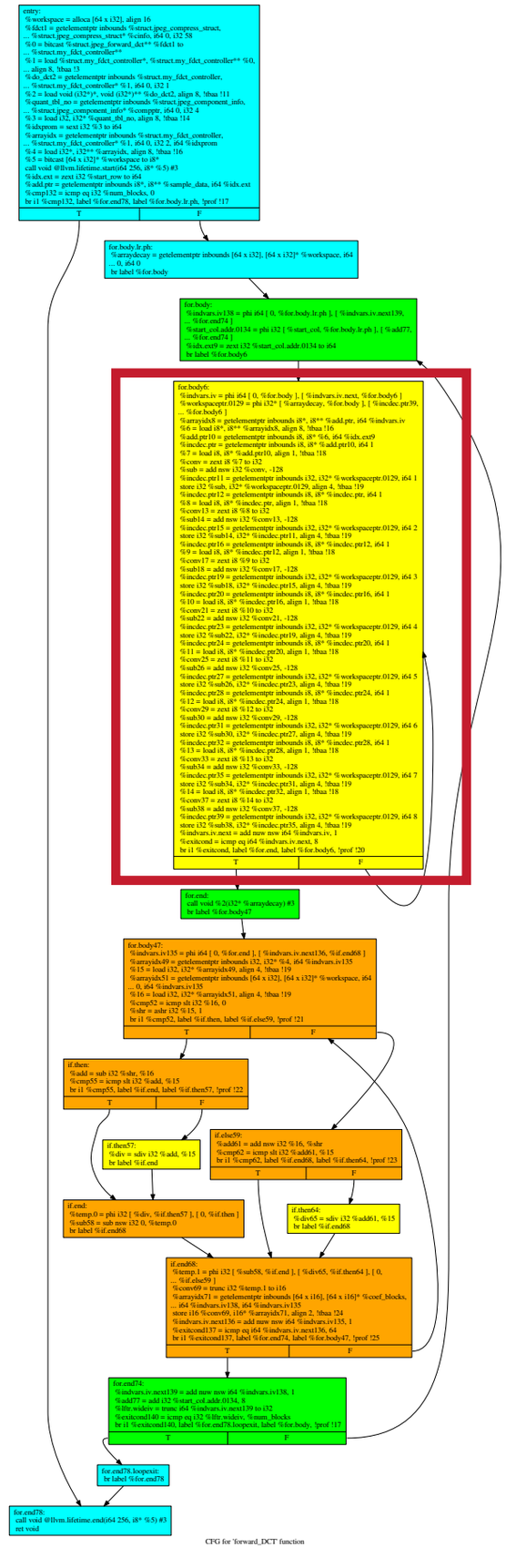
Coldest Regions of an application



CFG for 'forward_DCT' function

Coldest Regions of an application

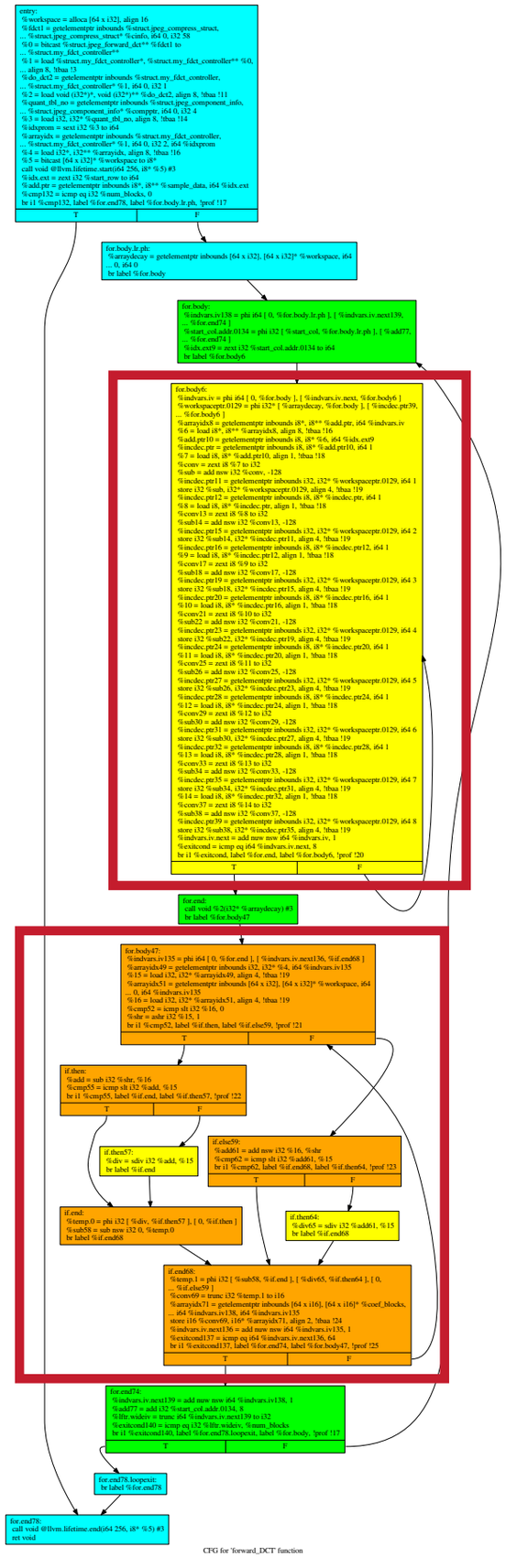
Hottest Regions of an application



CFG for 'forward_DCT' function

Coldest Regions of an application

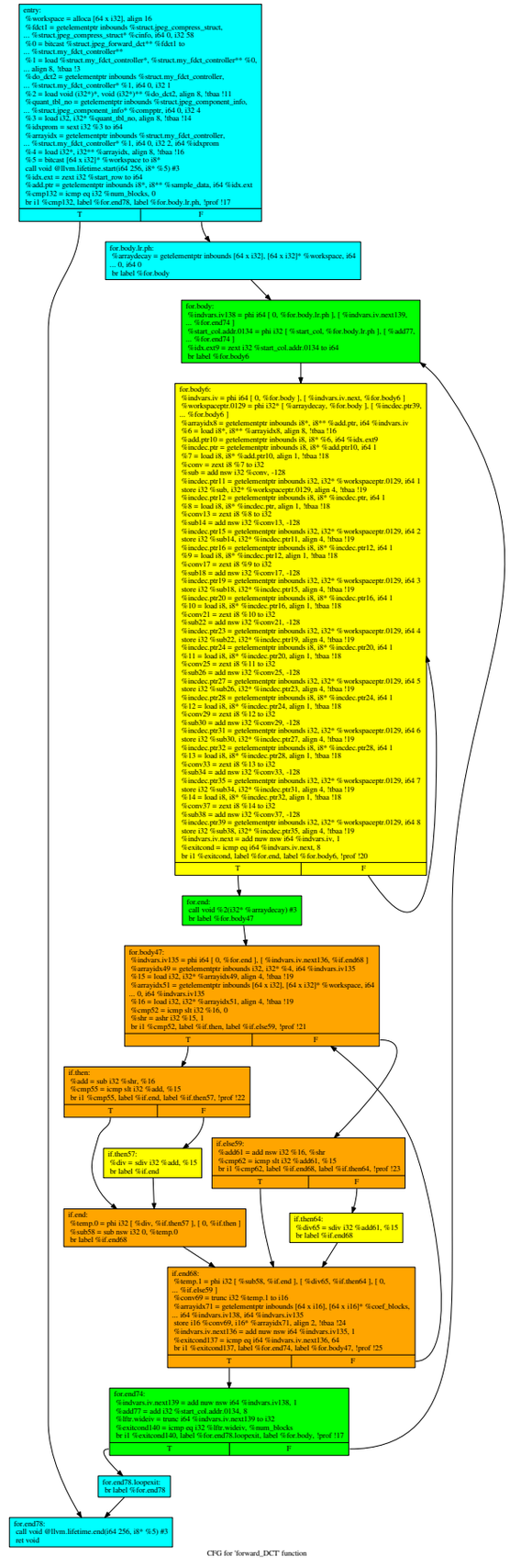
Hottest Regions of an application



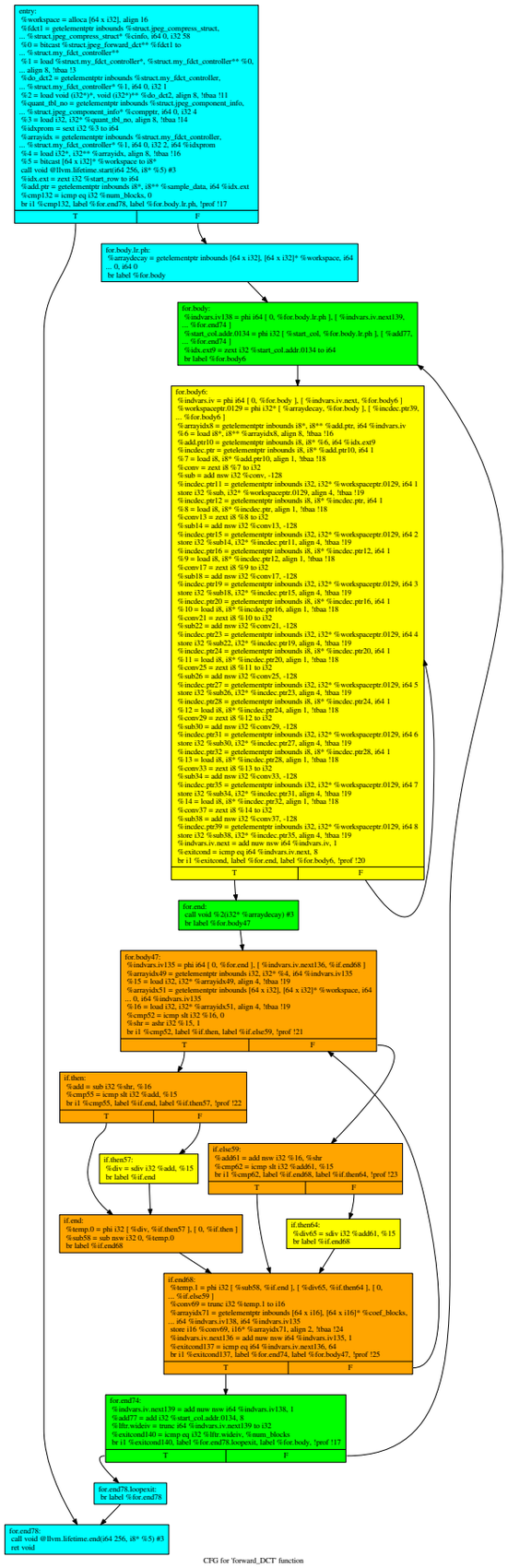
CFG for 'forward_DCT' function

Coldest Regions of an application

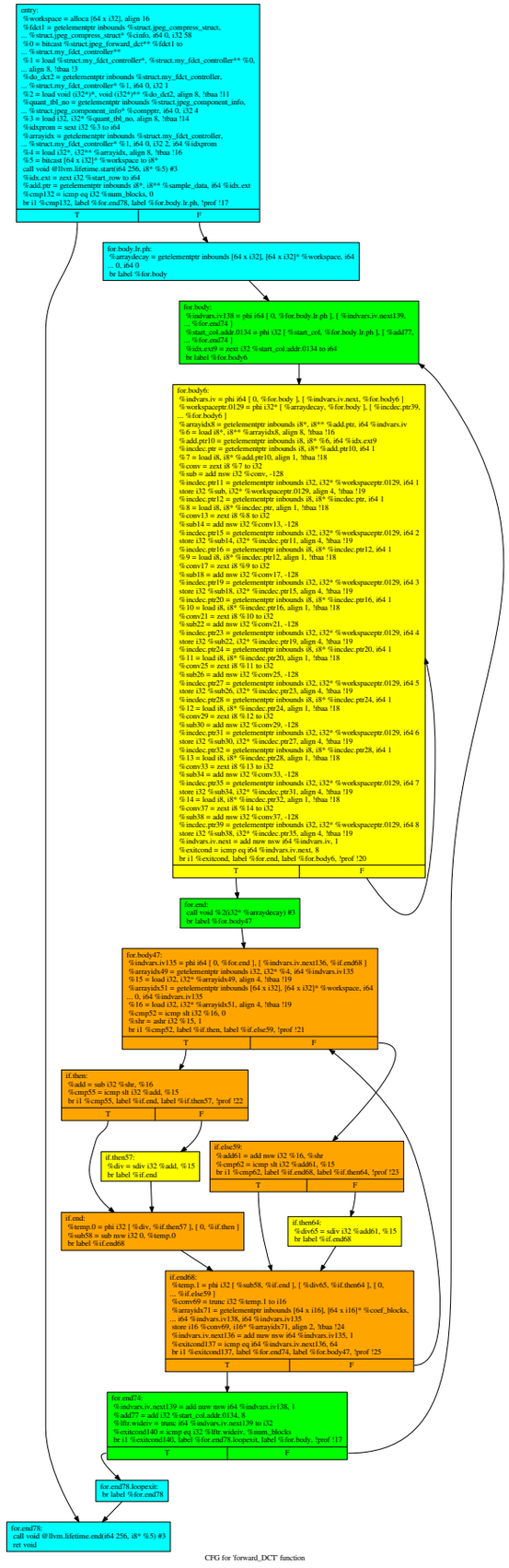
Hottest Regions of an application



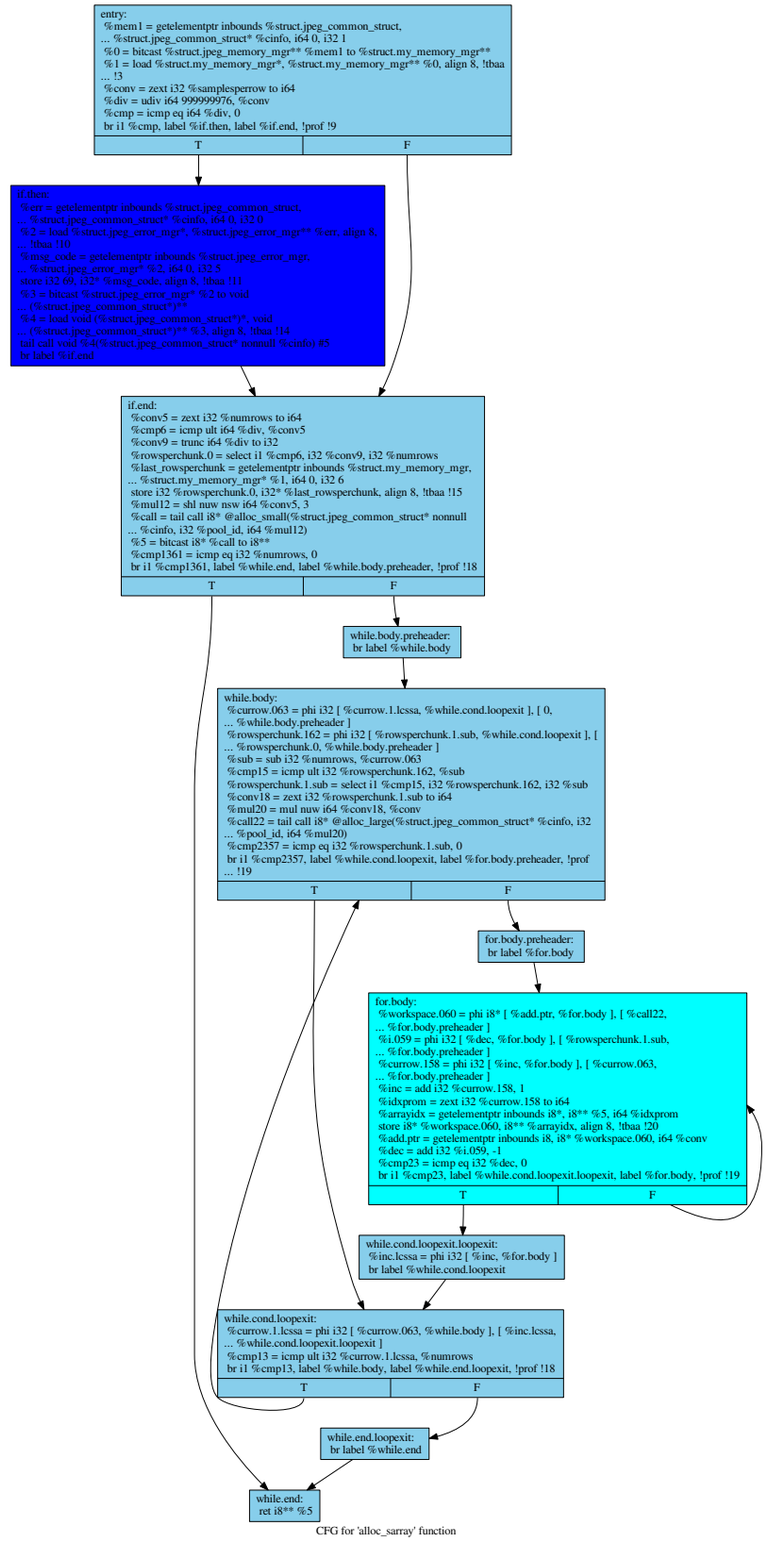
CFG for 'forward_DCT' function



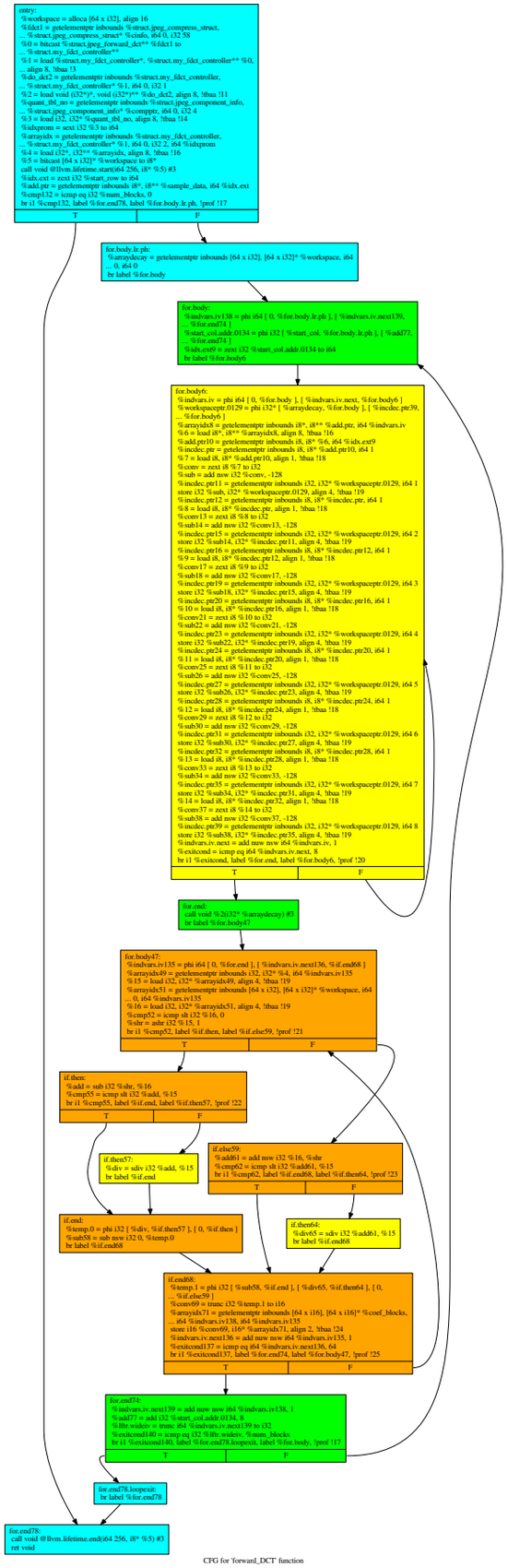
CFG for 'forward_DCT' function



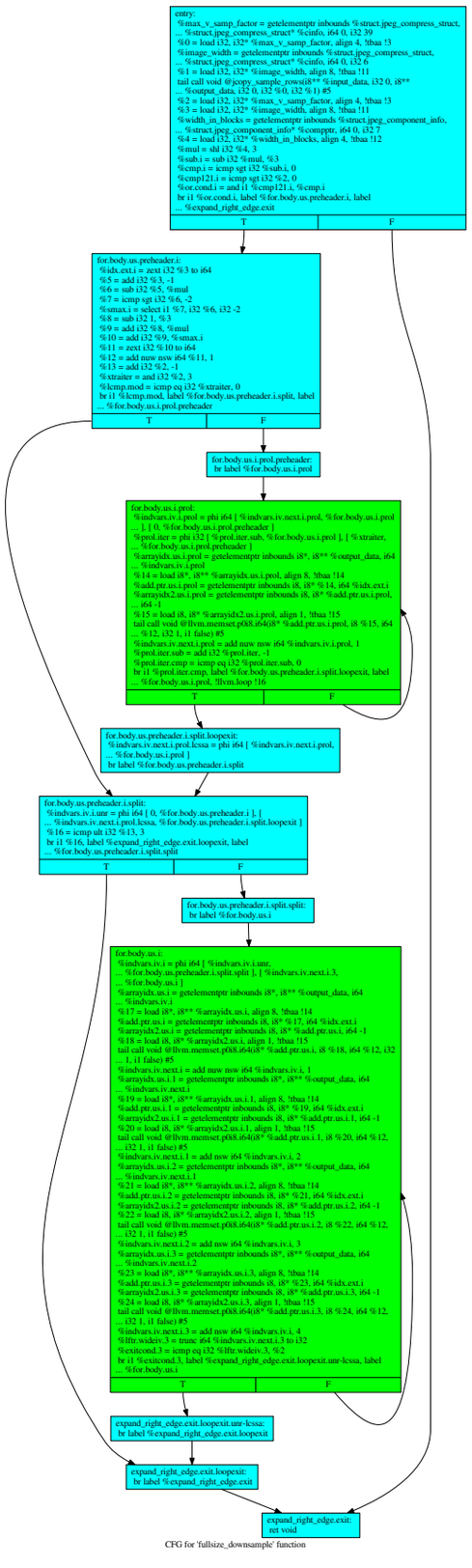
CFG for 'forward_DCT' function



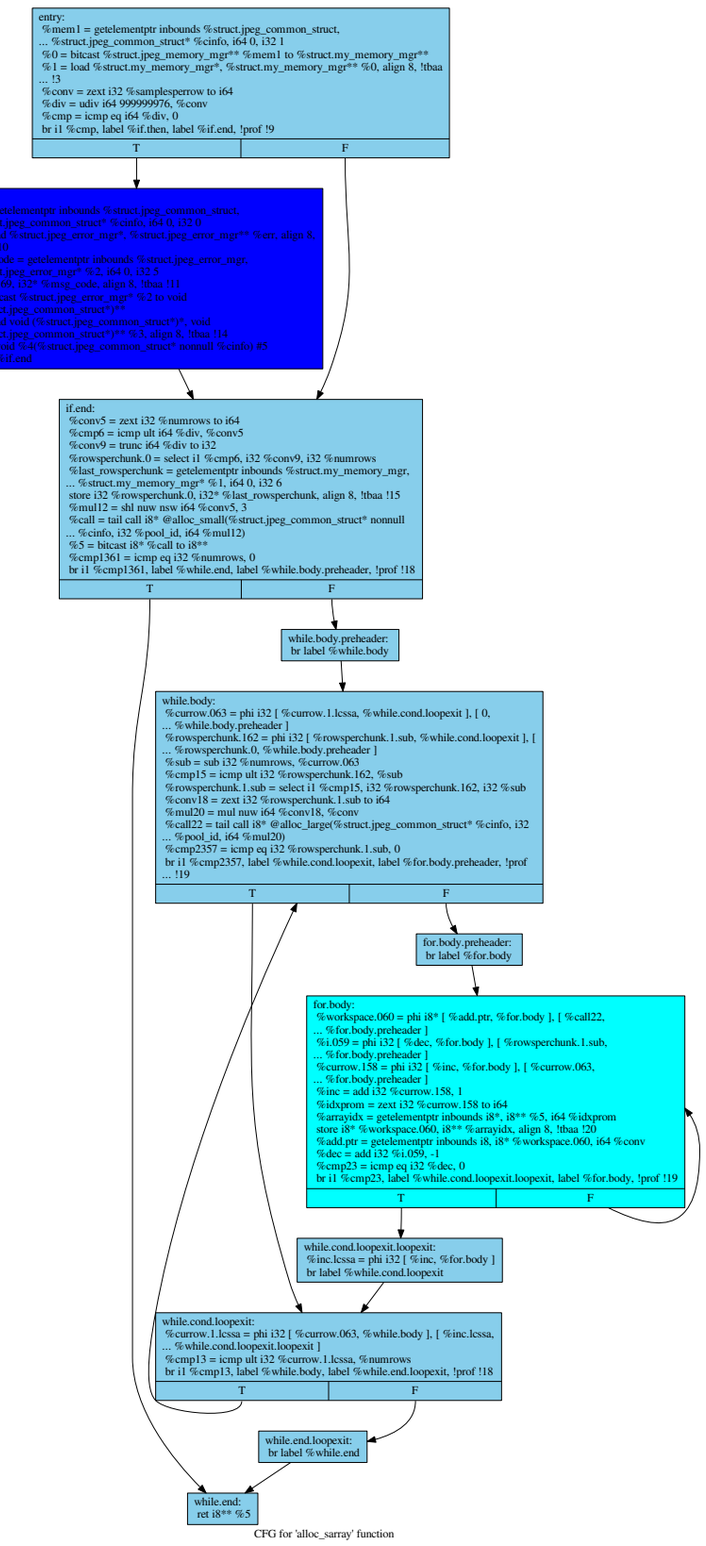
CFG for 'alloc_sarray' function



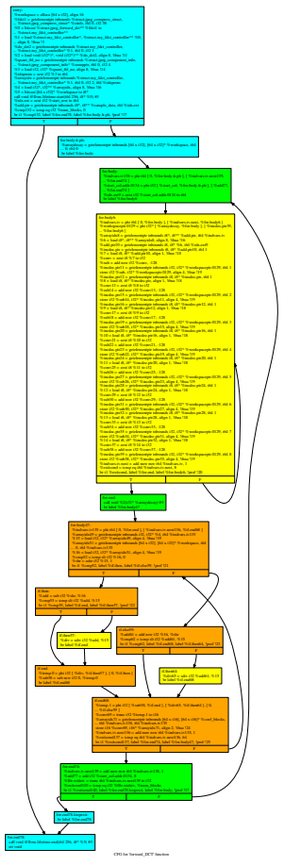
CFG for 'forward_DCT' function



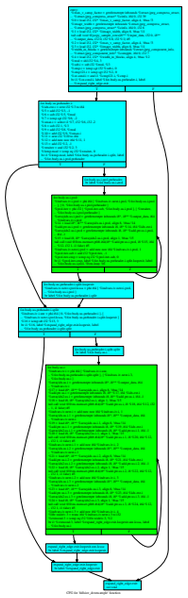
CFG for 'fullsize_downsample' function



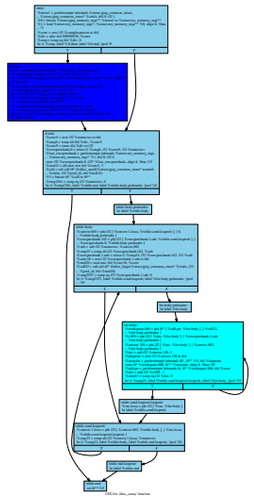
CFG for 'alloc_sarray' function



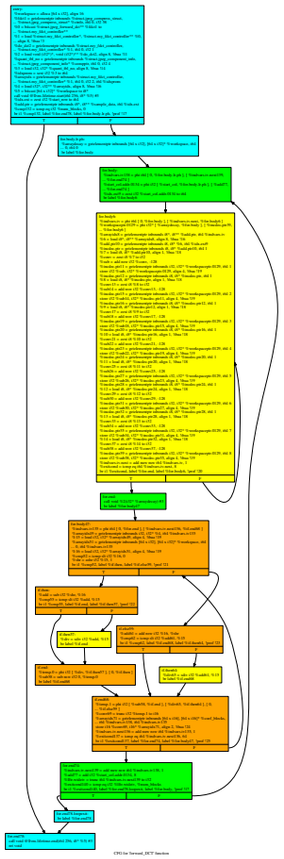
CFG for 'forward_DCT' function



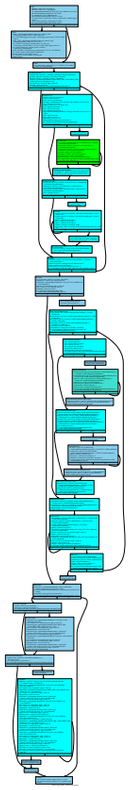
CFG for 'fallow_dcmm.angle' function

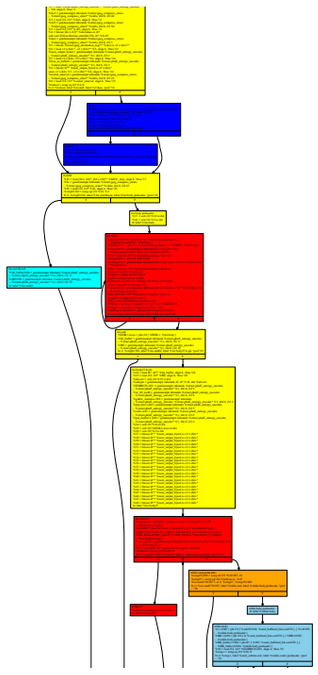


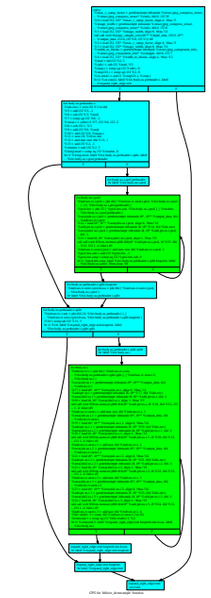
CFG for 'alloc_array' function



CFG for 'forward_DCT' function

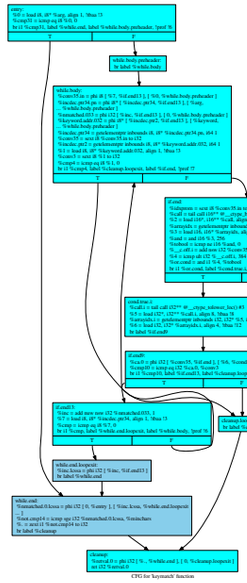




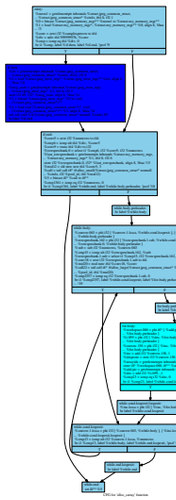


CFG for 'fallow_dcmta_angle' function

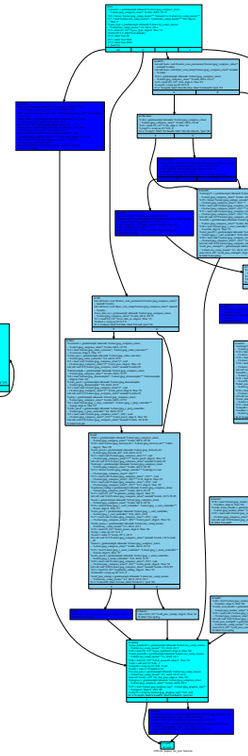
CFG for 'jpeg_idct_islow' function

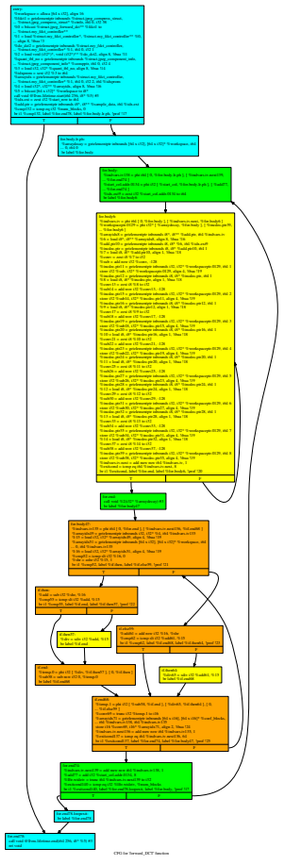


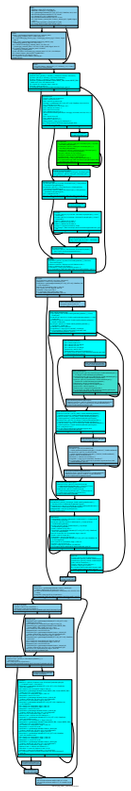
CFG for 'keymatch' function

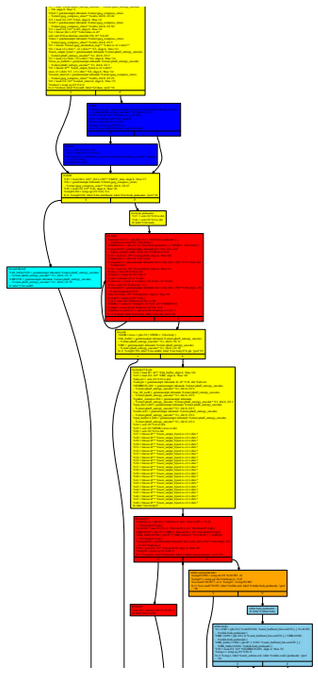


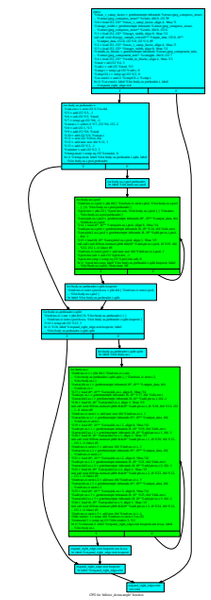
CFG for 'alloc_sarray' function



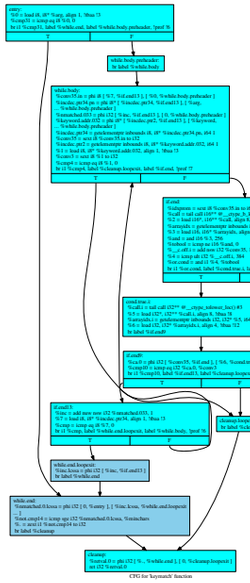

CFG for 'forward_DCT' function

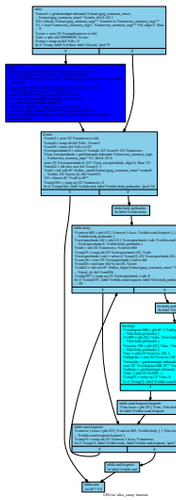


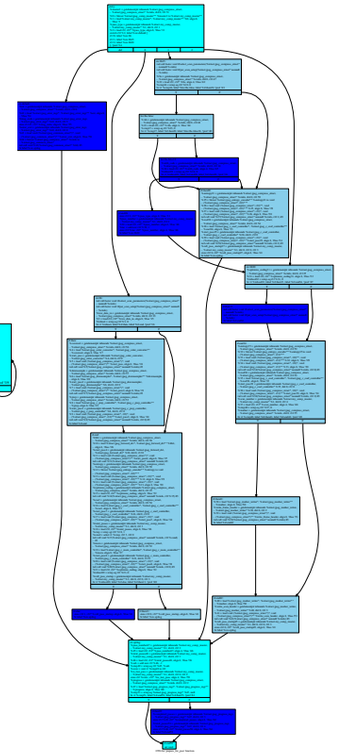


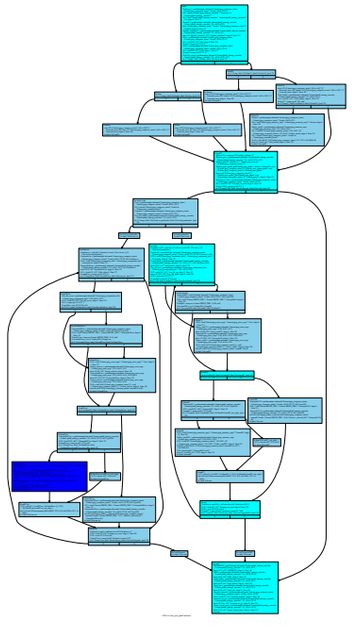

CFG for 'fallow_drama_night' function

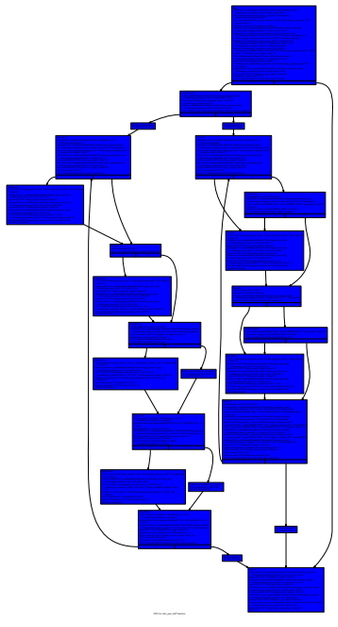

CFG for 'jpeg_idct_islow' function

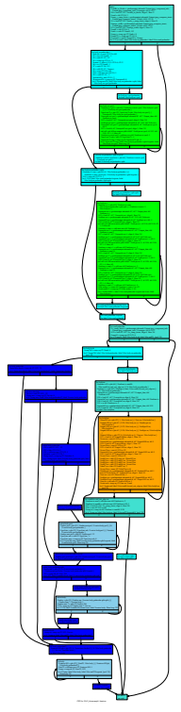

CFG for 'keymatch' function

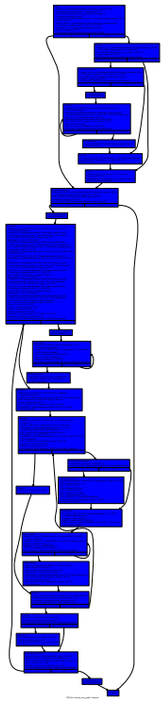

CFG for 'allow_journey' function

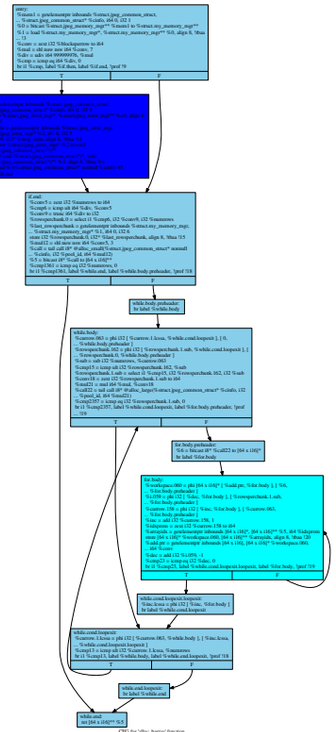

CFG for 'qh_jxc_convert' function

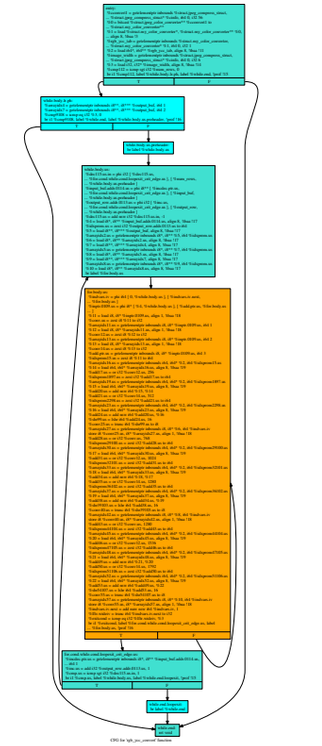

CFG for 'store_quad' function

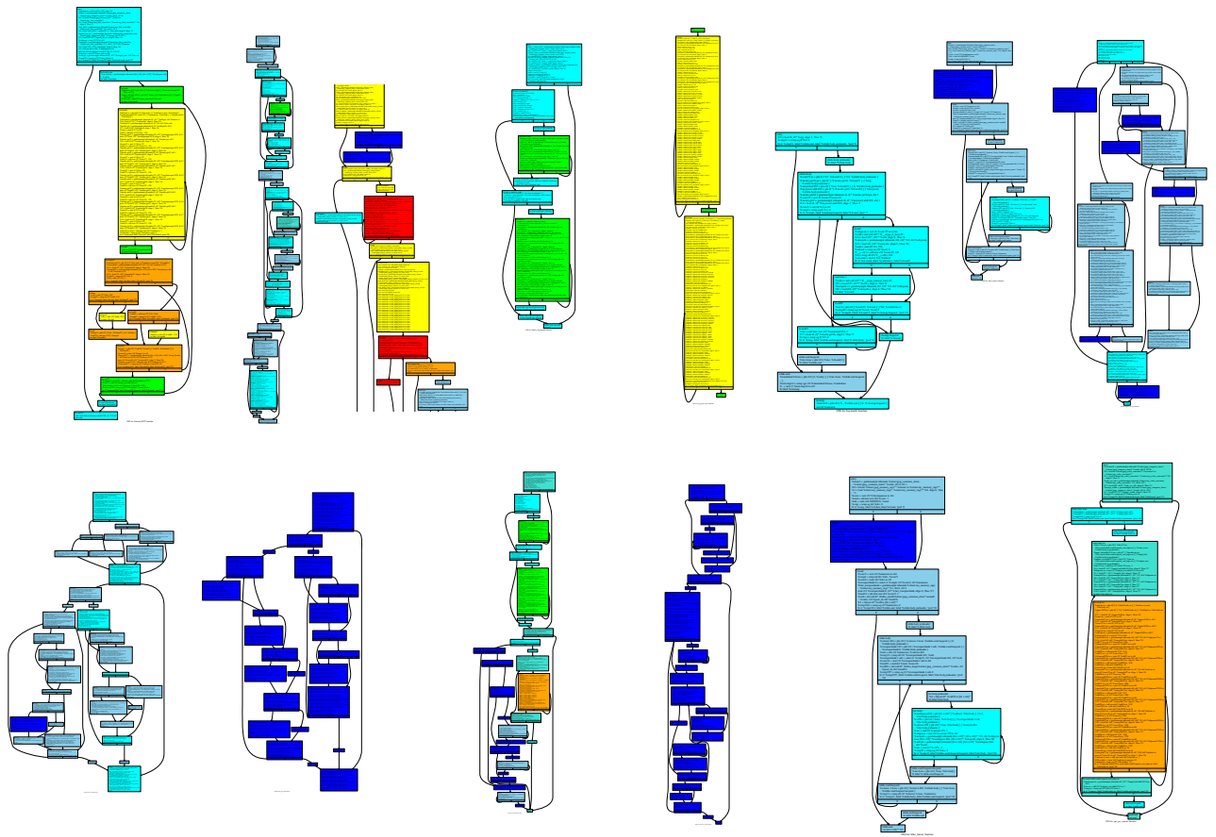

CFG for 'store_quiz_bell' function

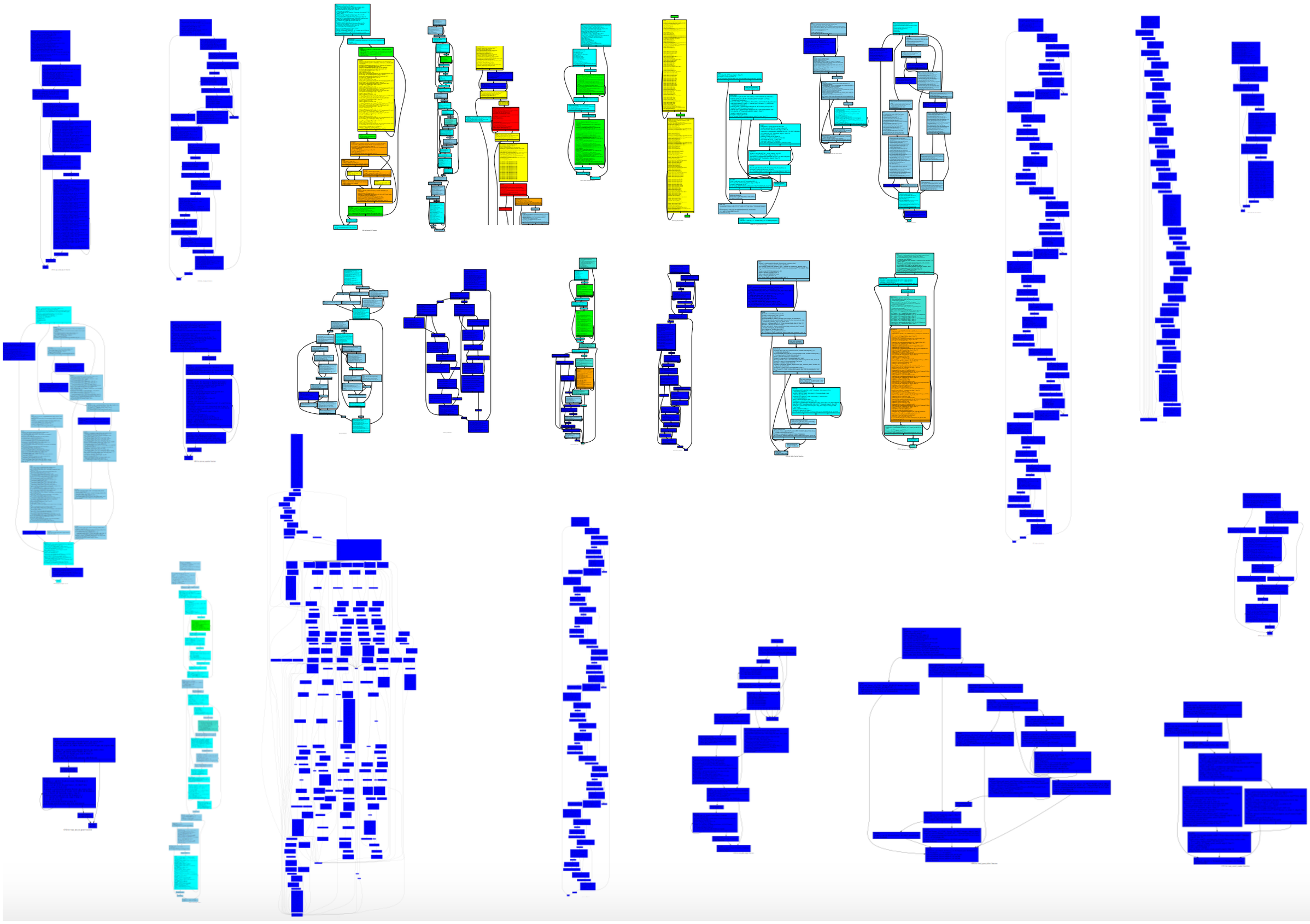

CFG for 'fallow_drama_night' function


CFG for 'jpeg_idct_islow' function


CFG for 'allow_journey' function


CFG for 'qh_jxc_convert' function

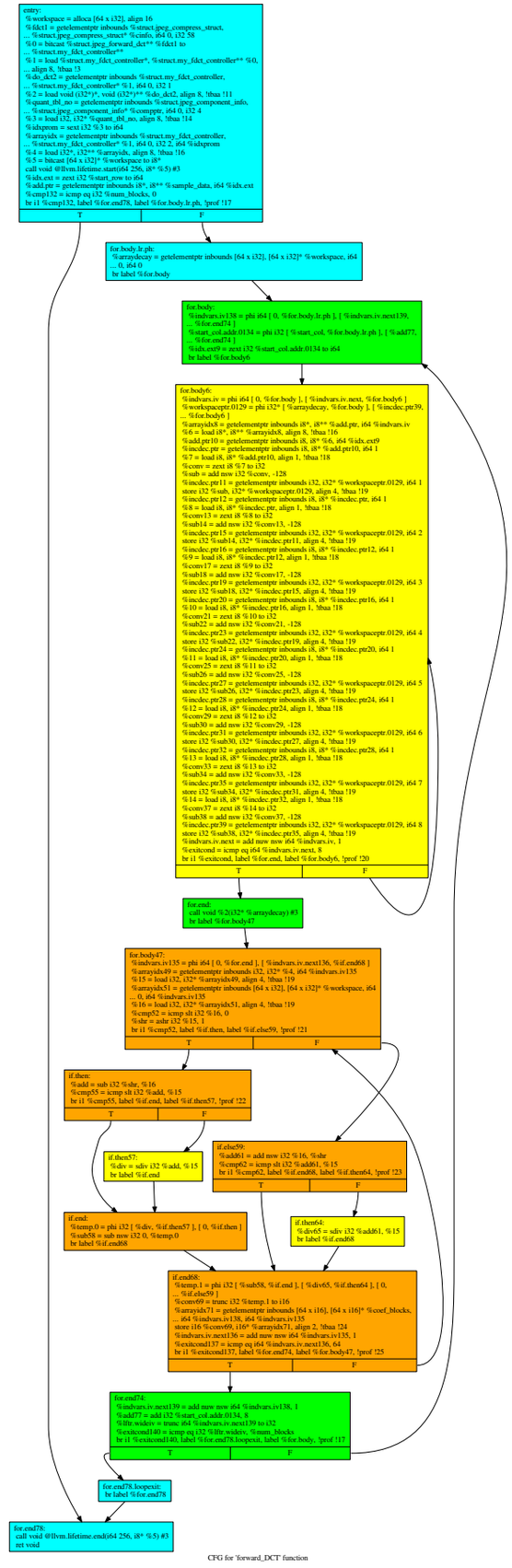




Coldest Regions of an application

INSTANT INTUITION ON EXECUTION FREQUENCY

Hottest Regions of an application



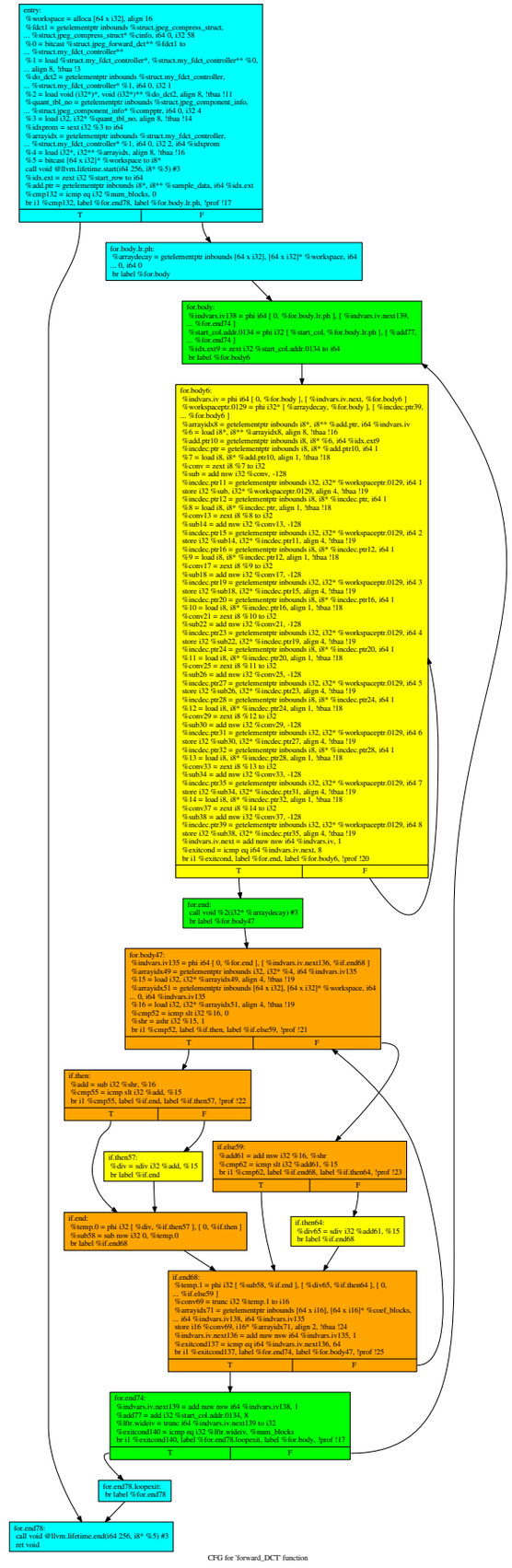
CFG for 'forward_DCT' function

Coldest Regions of an application

INSTANT INTUITION ON EXECUTION FREQUENCY

SYNTHESISE THE HOTTEST REGIONS IN HW

Hottest Regions of an application



CFG for 'forward_DCT' function

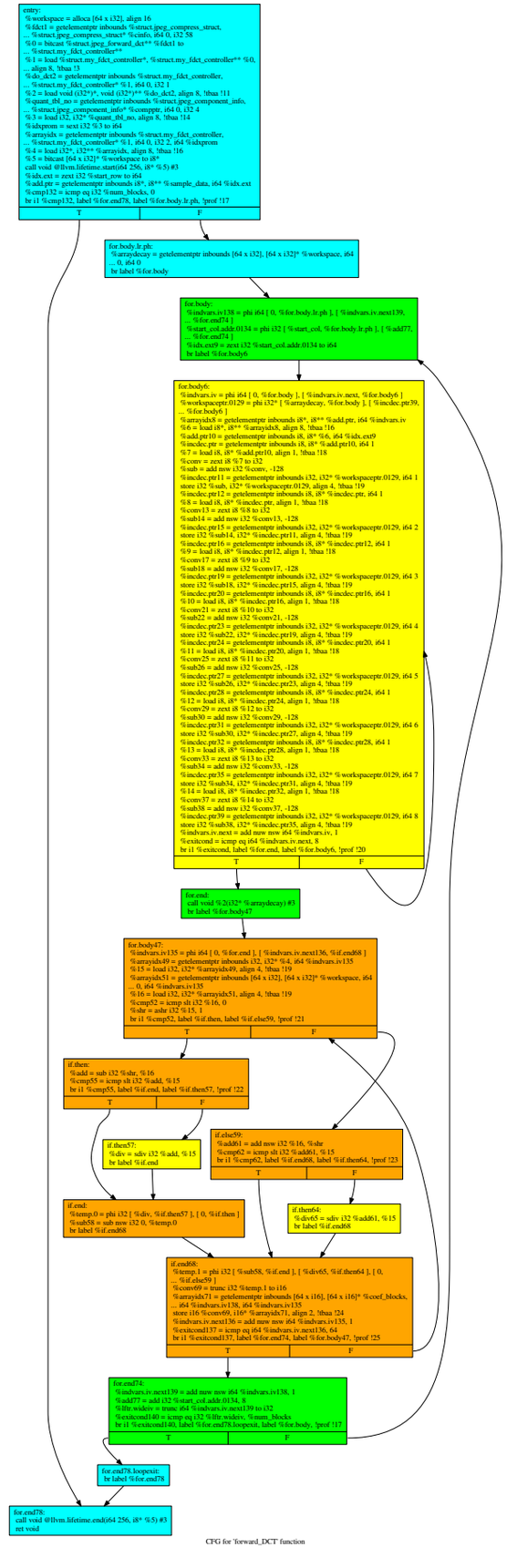
Coldest Regions of an application

INSTANT INTUITION ON EXECUTION FREQUENCY

SYNTHESISE THE HOTTEST REGIONS IN HW

TARGET SW OPTIMIZATION TO HOTTEST REGIONS

Hottest Regions of an application



CFG for 'forward_DCT' function

THANK YOU FOR YOUR ATTENTION!