|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | kmeans++ |
| S5378 | 111\*214 | 47.98 | 67.51 | 70.76 |
| S9234 | 159\*247 | 43.61 | 66.19 | 69.59 |
| S13207 | 236\*700 | 81.31 | 89.65 | 92.29 |
| S15850 | 126\*611 | 66.21 | 80.66 | 81.75 |
| S38417 | 99\*1664 | 43.27 | 72.44 | 75.35 |
| S38584 | 136\*1464 | 60.93 | 75.99 | 77.03 |
| 平均 |  | 57.22 | 75.41 | 77.80 |

FDR编码压缩率（kmeans++）

FDR编码压缩率（kmeans）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | kmeans |
| S5378 | 111\*214 | 47.98 | 67.51 | 68.44 |
| S9234 | 159\*247 | 43.61 | 66.19 | 68.53 |
| S13207 | 236\*700 | 81.31 | 89.65 | 88.899 |
| S15850 | 126\*611 | 66.21 | 80.66 | 80.55 |
| S38417 | 99\*1664 | 43.27 | 72.44 | 74.49 |
| S38584 | 136\*1464 | 60.93 | 75.99 | 75.25 |
| 平均 |  | 57.22 | 75.41 | 76.03 |

EFDR编码压缩率（kmeans）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | kmeans |
| S5378 | 111\*214 | 53.67 | 64.50 | 65.49 |
| S9234 | 159\*247 | 48.66 | 62.74 | 65.02 |
| S13207 | 236\*700 | 82.49 | 88.89 | 87.89 |
| S15850 | 126\*611 | 68.66 | 78.67 | 78.57 |
| S38417 | 99\*1664 | 62.02 | 71.63 | 72.94 |
| S38584 | 136\*1464 | 64.28 | 73.45 | 72.63 |
| 平均 |  | 63.30 | 73.30 | 73.76 |

EFDR编码压缩率（kmeans++）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | Kmeans++ |
| S5378 | 111\*214 | 53.67 | 64.50 | 67.75 |
| S9234 | 159\*247 | 48.66 | 62.74 | 66.14 |
| S13207 | 236\*700 | 82.49 | 88.89 | 91.60 |
| S15850 | 126\*611 | 68.66 | 78.67 | 79.84 |
| S38417 | 99\*1664 | 62.02 | 71.63 | 74.06 |
| S38584 | 136\*1464 | 64.28 | 73.45 | 74.60 |
| 平均 |  | 63.30 | 73.30 | 75.67 |

VIHC编码压缩率（kmeans）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | Kmeans |
| S5378 | 111\*214 | 51.75 | 69.63 | 70.77 |
| S9234 | 159\*247 | 47.23 | 69.58 | 72.40 |
| S13207 | 236\*700 | 83.55 | 92.20 | 91.90 |
| S15850 | 126\*611 | 67.97 | 82.96 | 83.52 |
| S38417 | 99\*1664 | 53.39 | 74.79 | 76.94 |
| S38584 | 136\*1464 | 62.30 | 78.11 | 78.21 |
| 平均 |  | 61.03 | 77.89 | 78.96 |

VIHC编码压缩率（kmeans++）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | Kmeans++ |
| S5378 | 111\*214 | 51.75 | 69.63 | 72.81 |
| S9234 | 159\*247 | 47.23 | 69.58 | 73.25 |
| S13207 | 236\*700 | 83.55 | 92.20 | 94.20 |
| S15850 | 126\*611 | 67.97 | 82.96 | 84.28 |
| S38417 | 99\*1664 | 53.39 | 74.79 | 77.86 |
| S38584 | 136\*1464 | 62.30 | 78.11 | 79.25 |
| 平均 |  | 61.03 | 77.89 | 80.28 |

golomb编码压缩率（kmeans）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | Kmeans |
| S5378 | 111\*214 | 37.11 | 58.76 | 59.90 |
| S9234 | 159\*247 | 45.26 | 61.31 | 63.12 |
| S13207 | 236\*700 | 67.60 | 72.21 | 72.22 |
| S15850 | 126\*611 | 58.01 | 67.80 | 68.52 |
| S38417 | 99\*1664 | 28.38 | 62.32 | 63.98 |
| S38584 | 136\*1464 | 54.18 | 65.76 | 66.22 |
| 平均 |  | 48.42 | 64.69 | 65.66 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | Kmeans++ |
| S5378 | 111\*214 | 37.11 | 58.76 | 61.77 |
| S9234 | 159\*247 | 45.26 | 61.31 | 63.57 |
| S13207 | 236\*700 | 67.60 | 72.21 | 72.97 |
| S15850 | 126\*611 | 58.01 | 67.80 | 68.70 |
| S38417 | 99\*1664 | 28.38 | 62.32 | 64.47 |
| S38584 | 136\*1464 | 54.18 | 65.76 | 66.40 |
| 平均 |  | 48.42 | 64.69 | 66.31 |

golomb编码压缩率（kmeans++）

ALT-FDR编码压缩率（kmeans）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | Kmeans++ |
| S5378 | 111\*214 | 49.95 | 61.62 | 65.17 |
| S9234 | 159\*247 | 44.96 | 58.31 | 62.72 |
| S13207 | 236\*700 | 80.23 | 86.52 | 90.88 |
| S15850 | 126\*611 | 65.83 | 75.76 | 77.82 |
| S38417 | 99\*1664 | 60.55 | 68.40 | 71.23 |
| S38584 | 136\*1464 | 61.13 | 69.70 | 71.97 |
| 平均 |  | 60.58 | 70.06 | 73.30 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | Kmeans |
| S5378 | 111\*214 | 49.95 | 61.62 | 63.05 |
| S9234 | 159\*247 | 44.96 | 58.31 | 61.48 |
| S13207 | 236\*700 | 80.23 | 86.52 | 86.84 |
| S15850 | 126\*611 | 65.83 | 75.76 | 76.41 |
| S38417 | 99\*1664 | 60.55 | 68.40 | 69.95 |
| S38584 | 136\*1464 | 61.13 | 69.70 | 69.75 |
| 平均 |  | 60.58 | 70.06 | 71.25 |

ALT-FDR编码压缩率（kmeans++）

RL-Huff编码压缩率（kmeans）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | Kmeans |
| S5378 | 111\*214 | 52.58 | 64.02 | 66.54 |
| S9234 | 159\*247 | 47.26 | 60.33 | 65.66 |
| S13207 | 236\*700 | 82.49 | 88.71 | 89.88 |
| S15850 | 126\*611 | 67.35 | 77.33 | 79.49 |
| S38417 | 99\*1664 | 63.32 | 69.66 | 72.87 |
| S38584 | 136\*1464 | 62.40 | 71.05 | 73.11 |
| 平均 |  | 62.57 | 71.85 | 74.60 |

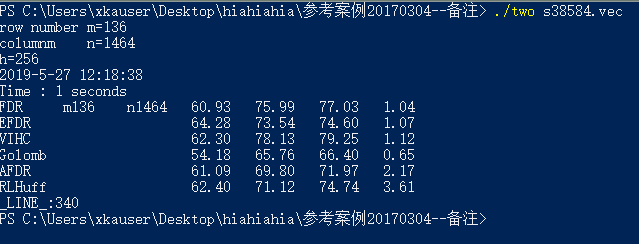
RL-Huff编码压缩率（kmeans++）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 电路名 | 规模 | 直接压缩 | 哈达码变换 | Kmeans++ |
| S5378 | 111\*214 | 52.58 | 64.02 | 68.59 |
| S9234 | 159\*247 | 47.26 | 60.33 | 67.07 |
| S13207 | 236\*700 | 82.49 | 88.71 | 92.82 |
| S15850 | 126\*611 | 67.35 | 77.33 | 80.57 |
| S38417 | 99\*1664 | 63.32 | 69.66 | 74.02 |
| S38584 | 136\*1464 | 62.40 | 71.05 | 74.74 |
| 平均 |  | 62.57 | 71.85 | 76.30 |

实验选取的基向量个数是根据行选取的具体方式为ceil(logm / log2) m为行数，个人认为应该按照列的数量选取具体选取方式为ceil(logn - log2)-1，减一的原因是因为取反基向量所生成的主分量集会扩大一倍。如果采取这种方法效果更佳。

对于S38584有1464列，那么取10个基向量会生成(2^(10)-1)\*2=2046个主分量，相比较而言实验对比图如下所示：

Kmeans++



1664列选取10列基向量生成的实验结果

