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Leuven, Belgium

Refet Firat Yazıcıoğlu
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Contents

1	Introduction	1
1.1	Ambulatory Health Care Systems	1
1.2	Body Area Networks	1
1.3	Scope of the Book	2
2	Introduction to Biopotential Acquisition	5
2.1	Introduction	5
2.2	Introduction to Biopotential Signals	5
2.3	Introduction to Biopotential Electrodes	6
2.3.1	Equivalent Circuit Model	7
2.3.2	Types of Biopotential Electrodes	8
2.4	Introduction to Biopotential Amplifiers	9
2.4.1	Interference Theory	10
2.4.2	Noise-Efficiency Factor (NEF) of Biopotential Amplifiers	11
2.4.3	State-of-the-Art in Instrumentation Amplifier Design	12
2.5	Introduction to Chopper Modulation Technique	13
2.5.1	Noise Analysis of Chopper Modulation Technique	14
2.5.2	Charge Injection and Residual Offset of Chopper Modulated Amplifiers	15
2.5.3	Signal Distortion in Chopper Modulated Amplifiers	17
2.5.4	CMRR of the Chopper Modulated Amplifiers	18
2.6	Conclusions	18
3	24-Channel EEG Readout Front-End ASIC	21
3.1	Introduction	21
3.2	ASIC Architecture	21
3.3	Current Balancing IA	22
3.3.1	Implementation	22
3.3.2	Measurement of Performance	24
3.4	CMRR Model for Biopotential Instrumentation Amplifiers	25
3.4.1	Systematic CMRR	26
3.4.2	CMRR Limit Due to Differential DC Electrode Offset	28
3.4.3	Verification of the CMRR Model	29
3.5	Programmable Gain Stage	30
3.5.1	Finite-Gain Compensated SC Amplifier	30
3.5.2	Programmable Gain Stage Implementation	32
3.6	Test Results	34
3.7	Conclusions	36

4	Biopotential Readout Front-End ASICs	39
4.1	Introduction	39
4.2	AC Coupled Chopper Modulated IA (ACCIA)	40
4.2.1	Architecture of the ACCIA	40
4.2.2	Architecture of the CBIA	44
4.2.3	Power-Noise Performance of the ACCIA	48
4.3	Chopping Spike Filter (CSF)	50
4.4	Low-Power Programmable Gain Stage	51
4.5	Single-Channel ExG Readout Front-End	53
4.5.1	Implementation	53
4.5.2	Measurement of Performance	56
4.5.3	Biological Test Results	61
4.6	Eight-Channel EEG Readout Front-End	63
4.6.1	Implementation	63
4.6.2	Measurement of Performance	68
4.6.3	Biological Test Results	71
4.7	Comparison with the State-of-the-Art	75
4.8	Conclusions	77
5	A Complete Biopotential Acquisition ASIC	79
5.1	Introduction	79
5.2	ASIC Architecture	79
5.3	Bias Generator Circuit	81
5.4	Class-AB Buffer Architecture	85
5.5	ACCIA with Coarse-Fine Servo-Loop	86
5.5.1	Structure of the ACCIA	86
5.5.2	Coarse Transconductance (CGM) Stage	90
5.5.3	Fine Transconductance (FGM) Stage	94
5.5.4	Integrator Stage	94
5.5.5	Current Balancing IA (CBIA) Architecture	95
5.5.6	Gain Stage	97
5.5.7	Implementation of the ACCIA	97
5.5.8	Fast Start-Up of the ACCIA	99
5.5.9	Power-Noise Performance of the ACCIA	100
5.5.10	Measurement of Performance	102
5.5.11	Comparison with State-of-the-Art	105
5.6	Chopping Spike Filter	106
5.7	Low-Power Programmable Gain Stage	107
5.8	Readout Front-End Channel Test Results	109
5.9	Square Wave Relaxation Oscillator	110
5.10	Analog-to-Digital Converter	113
5.10.1	Basic Operation Principle	113
5.10.2	Architecture	114
5.10.3	Capacitive DAC Implementation	117
5.10.4	Low-Offset Comparator Implementation	119

5.10.5 Test Results 123

5.11 Impedance Measurement and Calibration Modes 125

5.12 Biological Test Results 129

5.13 Summary of the Biopotential Acquisition ASIC 129

5.14 Conclusions 131

6 Wireless Biopotential Acquisition Systems 135

6.1 Introduction 135

6.2 A Wireless VEMP Acquisition System 136

6.3 A Wireless Two-Channel ExG Acquisition System 137

6.4 A 1 cm³ Wireless Eight-Channel EEG Acquisition System 141

6.5 Conclusions 145

7 Conclusions 147

7.1 Achievements 147

7.2 Suggestions for Future Work 149

Appendix 151

References 157

Index 163

Symbols and Abbreviations

Symbols

A_{CM}	Common-mode gain of an amplifier
A_v	Open-loop gain of an amplifier
BW	–3 dB bandwidth of an amplifier (Hz)
C_{bg}	Coupling capacitor between body and earth ground
C_{bp}	Coupling capacitor between body and mains
C_{iso}	Isolation capacitance between earth ground and battery
C_{in}	Input capacitance
C_{ox}	Gate-oxide capacitance per unit area (F/cm ²)
E_g	Bandgap energy of silicon (≈ 1.12 eV)
f_c	Low-pass cut-off frequency of an amplifier
$f_{c,1/f}$	Corner frequency of the 1/f noise
f_{chop}	Chopping clock frequency
f_{CSF}	Operating frequency of the CSF stage
$f_{LP,IA}$	Low-pass cut-off frequency of the IA
g_{ds}	Output transconductance of a MOS transistor
g_m	Transconductance of a MOS transistor
g_o	Output transconductance of a current source
I_D	Displacement current through human body
I_{ds}	Drain current of a MOS transistor
I_{tot}	Total supply current
k	Boltzmann constant = 1.3806×10^{-23} m ² kg/s ²
KF_F	1/f noise constant of a MOS transistor (C ² /cm ²)
μ_p	Mobility of pMOS transistors
n	Weak inversion slope factor (= 1.45 in AMIS 0.5 μ m technology)
q	Unit charge = 1.6×10^{-19} C
R_{ds}	Drain-to-source resistance of a MOS transistor
R_{el}	Electrode impedance
R_s	Source resistance
S_0	Thermal noise level of an amplifier
T	Absolute temperature in Kelvin
V_{CM}	Common-mode voltage on the human body
$V_{elec-off,max}$	Maximum differential DC electrode offset voltage that can be filtered by ACCIA
V_{gs}	Gate-to-source voltage of a nMOS transistor
$V_{in,rms}$	Input-referred total RMS voltage noise
V_{sg}	Source-to-gate voltage of a pMOS transistor
V_{sd}	Source-to-drain voltage of a pMOS transistor
V_t	Thermal voltage kT/q

Abbreviations

A_{CM}	Common-mode gain of an amplifier
ACCIA	AC Coupled Chopper Modulated Instrumentation Amplifier
ADC	Analog-to-Digital Converter
A_{DM}	Differential-mode gain of an amplifier
CMFB	Common Mode Feedback
CBIA	Current Balancing (or Feedback) IA
CMRR	Common Mode Rejection Ratio
$CMRR_{eq}$	Equivalent CMRR including all the limiting mechanisms
$CMRR_{\Delta g_{ds}}$	CMRR limit due to g_{ds} mismatch of the input pair transistors
$CMRR_{\Delta g_o}$	CMRR limit due to g_o mismatch of current sources
$CMRR_{sys}$	Systematic CMRR
CMOS	Complementary Metal Oxide Semiconductor
CGM	Coarse Transconductance
CSF	Chopping Spike Filter
DAC	Digital-to-Analog Converter
DSP	Digital Signal Processing
ECG	Electrocardiogram
EEG	Electroencephalogram
EMG	Electromyogram
EOG	Electrooculogram
FGM	Fine Transconductance
HPF	High-Pass Filter
IA	Instrumentation Amplifier
LPF	Low-Pass Filter
NEF	Noise-Efficiency Factor
nMOS	n-Channel Metal Oxide Semiconductor
OTA	Operational Transconductance Amplifier
pMOS	p-Channel Metal Oxide Semiconductor
PSG	Polysomnography
PSD	Power Spectral Density
RGC	Regulated Cascode Current Mirror
RMS	Root-Mean-Square
S&H	Sample-and-Hold
SAR	Successive Approximation
SC	Switched-Capacitor
SFDR	Spurious Dynamic Range
SNDR	Signal-to-Noise Dynamic Range
SPI	Serial Peripheral Interface
SPL	Sound Pressure Level
STFT	Short-Time Fourier Transform
T&H	Track-and-Hold
TC	Temperature Coefficient
THD	Total Harmonic Distortion

VEMP	Vestibular Evoked Myogenic Potential
VGA	Variable Gain Amplifier
WHO	World Health Organization
WLAN	Wireless Local Area Network